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SYPHILIS IN PRACTICE*

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Is syphilis uncommon in general practice? I have often asked this question, and have as often been assured that syphilis only accounts for a very small part of the practitioner's miscellaneous occupation. This does not seem to agree with hospital experience, or at least with the experience gained in a venereal clinic. Thus in 1,000 consecutive cases taken from the department for syphilis at the Middlesex Hospital I find the distribution of the disease as follows:

Primary	133	Syphilis of the eye ...	55
Secondary	172	Syphilis of the throat	112
Neurosyphilis	130	Miscellaneous	342
Cardiovascular syphilis	42		
Visceral	14		1,000

Out of these 1,000 patients, who may be considered a representative sample of the syphilized population, only 305, or 30.5 per cent., belong to the early or communicable stage. This may provide the explanation to a common, but I believe an erroneous, impression, for when I have further questioned my informants I find that by syphilis they usually mean and think of the early stages of the disease, whereas the term has, of course, a very much wider significance. This is partly because the early period has been given special prominence in the propaganda against the disease, and partly because the later developments are observed in special departments, and thus come to be related to diseases of the bone, eye, ear, or nervous system rather than to syphilis as a whole.

There are thus grounds for believing that the syphilitic taint is far more prevalent than is usually supposed. Nor is the disease decreasing, in spite of the efforts of the public clinics. Further, we have still to feel the effects of the syphilization of the war and the period that immediately followed.

To be prepared to recognize every form of syphilis, and to attempt to forestall or remedy all the possible consequences of infection, demands a comprehensive knowledge which is outside the scope of everyday work. The following short formula reasonably covers all the necessary ground, and provides a simple key to most of the problems likely to arise:

1. Early syphilis is communicable and curable.
2. Late syphilis is not communicable, and only cured with difficulty and in exceptional cases.

Early Syphilis is Communicable

A statement so obvious seems to need no comment. Syphilis is readily transmitted through the mucous membrane during sexual intercourse and in kissing, but apart from this the risk of infection is apparently inconsiderable. This has an important bearing on many domestic problems—for example, a recently infected individual living in a household. Provided ordinary precautions are taken the danger to others would seem to be slight, and this is constantly confirmed by experience. While each case must be considered on its merits, the domestic servant requires special consideration, and the practitioner may have to decide whether he should disclose to the head of the household facts which have come to his knowledge in the exercise of his profession. The obligation to secrecy allows of exceptions: the circumstances related below would seem to justify extreme measures. A children's nurse was found to be suffering from a highly infective form of syphilis. Her lips and mouth presented numerous mucous patches. Although the nature of the disease and its possible consequences to her charges were clearly explained to her, she refused to leave her situation voluntarily. Such an occasion would no doubt be regarded in law as privileged. According to Dixon Mann and Brend[1] a privileged communication is one which is prevented from being defamatory and actionable by circumstances rebutting the existence of malice: there must be an interest to protect or a duty to perform. Fortunately, the circumstances calling for such measures can only rarely arise: further, it is to be remembered that special privileges in this respect are conferred by law upon patients attending the public venereal clinics.

Early Syphilis is Curable

When we speak of cure it is necessary to define the sense in which we use the word. Here it is taken in its literal meaning. There are some authorities who believe it is still too early to judge of the results of modern treatment. On the other hand, it is to be remembered that in the case of syphilis we are in possession of specific remedies—the arsenicals, mercury, and bismuth—and a delicate specific test, the Wassermann reaction, which permit of a precision in treatment and in testing the results of treatment that is unique in medicine. We have therefore substantial grounds for presuming cure, provided that the patient has completed a standard form of treatment, and provided also a sequence of negative blood tests have been observed over a sufficient period.

In the early stages of the disease our object is to cure the patient: that is a personal service to the individual. Incidentally a contribution is made to the public health by excluding a potential source of infection. With such objects in view the most vigorous intensive treatment is justified. On the introduction of the arsenical remedies it was thought that no more than a short course was required: this opinion has long been abandoned.

In 1913 the late Sir Malcolm Morris and I[2] advocated salvarsan followed by mercury, continued with intermissions for two years, and I would further add that a full two years is desirable in all forms of the early disease, whether primary or secondary, because in both

* Based on a lecture given to the Folkestone Division of the British Medical Association.

cases we are dealing with a generalized infection which merits similar intensive treatment pushed to the limit of tolerance of the patient. A distinction is sometimes made between primary syphilis with negative Wassermann reaction and primary syphilis with positive Wassermann reaction. This is demonstrably unsound, for if the blood is tested at regular intervals while treatment is in progress it becomes evident that both conform to the same pattern, as Kennaway and I[3] have shown. The intensive treatment should begin with an arsenical compound, preferably of the 914 type because of its convenience.

In the scheme originally adopted at Middlesex Hospital and continued for some years, a first intravenous injection of 0.6 gram N.A.B. was followed by nine further injections each of 0.9 gram at weekly intervals, for both men and women. This vigorous policy proved completely satisfactory. There were no calamities; even the minor inconveniences of arsenical medication were rare, and jaundice was almost unknown. Later, when the first dose was reduced to 0.3 gram, followed by nine injections of 0.6 gram, jaundice became much more common, which may indicate that so-called arsenical jaundice is, in some cases at least, syphilitic. After the preliminary arsenic, mercury in series of twelve intramuscular injections, one each week, with a rest of one month between each course, completed the two-year treatment. For some time past bismuth used in the same way has replaced mercury. An additional arsenical course following the first mercury or bismuth series may be considered necessary where the Wassermann response lags, or for other reasons.

What results can be expected from intensive treatment? To test this some 1,800 consecutive cases have been reviewed. Out of this number only 121 proved suitable for analysis; the remainder were examples of nerve, ocular, congenital, or cardiovascular syphilis, etc., or, if in the early stages, had defaulted. These 121 cases—thirty-five primary and eighty-six secondary—have been brought together in tables in which only those with at least two years' observation have been included. In every case the diagnosis has been verified either by a preliminary Wassermann reaction or by the presence of *S. pallida* in the primary sore. A word may be said concerning the subsequent blood examinations: the figures given in the column headed "subsequent W.R.: blood" summarize the form of the reaction throughout the whole period of observation, representing, in most cases, a large number of separate tests.

The investigation of the cerebro-spinal fluid, shown in the adjoining column, was invariably carried out shortly after the conclusion of treatment. An earlier examination may be misleading, because, as is now well known, in all forms of recent syphilitic infection involvement of the central nervous system as shown by the changes in the cerebro-spinal fluid is relatively common, the central nervous system participating in the general infection. This accepted fact, taken with the findings shown in the tables (examination of the cerebro-spinal fluid), permits of two conclusions: first, that the spirochaetes in the central nervous system can be, and are, reached and destroyed by intramuscular and intravenous treatment, and secondly, as one is entitled to infer from the above, that the specialized technique which claims to influence syphilis of the central nervous system by introducing therapeutic substances directly into the cerebro-spinal fluid is unnecessary and presumably much less efficacious than the intramuscular and intravenous routes. Further, in early syphilis the blood reactions in themselves afford a very reliable indication of the condition of, and result of treatment in, the central nervous system. If they have followed a favourable course during standard treatment it will then be found that the cerebro-spinal fluid is negative to all tests if examined at the proper time—that is, three months after the full course has been completed.

Taking the primary cases first (Table I), twenty-one out of the total thirty-five may be considered as cured—that is, 60 per cent. In contrast to this, out of eighty-six secondary cases approximately 81 per cent. have been cured (Table II). These figures imply, contrary to the generally accepted view, that the chance of cure is greater in secondary than in primary disease. The evolution of an arsenic-resistant type of spirochaete, as suggested by Drake and Thomson,[4] may explain this paradox. This postulates a type of spirochaete which has learned to accommodate itself to the arsenicals but not to the natural antibodies formed in the secondary stage. If the arsenicals are used very early these natural antisubstances may be prevented from developing. In this connexion it is interesting to recall the investigations of Bruusgaard[5] into the after-history of Caesar Boeck's patients. Boeck held and

TABLE I.—*Primary Syphilis* (35 *Cases*)

No.	Age	Sex	Form of Treatment: As	Hg	Bi	Duration of Treatment	Period of Observation	Spirochaetes	W.R.: Blood: 1st	Subsequent	W.R. in Cerebro-spinal Fluid	Result
738	41	F	+	+	0	18 mos.	2½ yrs.		+	– – – +		Uncured: treatment irregular
813	32	M	+	+	0	18 mos.	2 yrs.		+	– – – –		Cured
908	25	M	+	+	0	5 mos.	4 yrs.	P	–	– – – –	Negative	Cured
1,006	19	M	+	+	0	12 mos.	3½ yrs.		+	– – – –		Cured
1,044	33	M	+	+	0	10 mos.	8 yrs.	P	–	– – – –		Cured
1,145	31	F	+	+	0	2½ yrs.	2½ yrs.		+	+ – +		Uncured
1,152	29	M	+	+	0	1 year	2 yrs.		+	– – – –		Cured
1,168	29	M	+	+	0	4 yrs.	5 yrs.	P	–	+ + + –		? Cured
1,222	22	F	+	+	0	1 year	4 yrs.		+	– – + +		Uncured: treatment irregular
1,323	21	M	+	+	0	2 yrs.	4 yrs.		–	– – +		Uncured: chancre redux
1,339	26	F	+	+	0	1 year	2½ yrs.	P	–	– – – –		Cured
1,413	28	M	+	+	0	4 wks.	8 yrs.	P	–	– –		Cured
1,466	24	M	+	+	0	7 wks.	2½ yrs.		+	– – –		Cured
1,509	26	M	+	+	0	2 yrs.	3 yrs.		+	+ + + +		Uncured
1,543	34	M	+	+	0	3 mos.	6 yrs.		+	– – –		Cured
1,656	28	F	+	+	+	2 yrs.	2½ yrs.		–	– + + –		? Cured
1,657	35	F	+	+	0	18 mos.	5 yrs.		+	– – – –		Cured
1,682	20	F	+	+	+	2 yrs.	5 yrs.		+	– – + +		Uncured
1,688	23	M	+	+	0	18 mos.	2½ yrs.	P	–	– – –		Cured
1,685	20	M	+	+	0	18 mos.	3 yrs.		+	– – – –		Cured
1,754	30	M	+	+	+	2½ yrs.	5 yrs.		+	+ + + +		Uncured
1,766	22	F	+	+	+	2 yrs.	4 yrs.		+	+ + – +		Uncured
1,776	19	F	+	+	0	18 mos.	3 yrs.		+	– – –		Cured
1,792	31	M	+	+	0	1 year	2 yrs.		+	– – –	Negative	Cured
1,885	35	M	+	+	+	2 yrs.	3 yrs.		+	+ + + –		? Cured
1,920	29	F	+	+	+	1 year	2 yrs.		+	– – –		Cured
1,942	23	M	+	+	+	3 yrs.	4 yrs.		+	+ + + –		? Cured
1,955	30	F	+	+	0	1 year	3 yrs.		+	– – –		Cured
1,983	44	M	+	+	+	2 yrs.	4 yrs.	P	–	– – – –		Cured
2,045	41	M	+	+	+	2 yrs.	2 yrs.		+	– – –		Cured
2,048	20	M	+	+	0	3 mos.	2 yrs.		+	– +		Uncured
2,302	24	M	+	+	+	2 yrs.	4 yrs.		+	– – –		Cured
2,314	24	F	+	0	+	2 yrs.	2 yrs.		+	– – –		Cured
2,325	32	M	+	0	+	2 yrs.	3 yrs.	P	–	– – – –		Cured
2,350	40	M	+	0	+	2 yrs.	2 yrs.		+	– + +		Uncured

P = Present

TABLE II.—*Secondary Syphilis (86 Cases)*

No.	Age	Sex	Form of Treatment			Duration of Treatment	Period of Observation	W.R.: Blood		W.R. in Cerebro-spinal Fluid	Result
			As	Hg	Bi			1st	Subsequent		
556	24	F	+	+	0	16 mos.	3½ yrs.	+	– – – –	Negative	Cured
553	29	F	+	+	0	2 yrs.	3 yrs.	+	– – – –		Cured
561	27	M	+	+	0	1 year	6 yrs.	+	– – – –		Cured
573	39	F	+	+	0	18 mos.	2½ yrs.	+	– – – –		Cured
578	25	F	+	+	0	1 year	2½ yrs.	+	– – – –		Cured
582	29	M	+	+	0	1½ yrs.	7½ yrs.	+	– – – –		Cured
603	30	F	+	+	+	2 yrs.	8 yrs.	+	– + – –		Cured
621	38	F	+	+	0	18 mos.	5 yrs.	+	– – – –		Cured
623	29	M	+	+	0	2 yrs.	5½ yrs.	+	– + – –	Negative	Cured
625	24	F	+	+	0	1 year	10 yrs.	+	– – – –	Negative	Cured
636	40	F	+	+	0	2 yrs.	2 yrs.	+	+ +		Uncured
662	29	F	+	+	0	18 mos.	3½ yrs.	+	– – – –		Cured
678	36	M	+	+	0	1 year	2½ yrs.	+	– – – –		Cured
690		F	+	+	0	2½ yrs.	6 yrs.	+	– + –	Negative	? Cured
789	27	M	+	+	0	2 yrs.	2½ yrs.	+	– – – –		Cured
793	23	M	+	+	0	1 year	4½ yrs.	+	– – – –	Negative	Cured
803	35	F	+	+	0	1 year	4½ yrs.	+	– – – –	Negative	Cured
810	21	F	+	+	0	18 mos.	2 yrs.	+	– – – –		Cured
811	41	F	+	+	+	4 yrs.	4 yrs.	+	– + –		? Cured
824	27	M	+	+	0	4 mos.	2 yrs.	+	–		? Cured
825	30	F	+	+	+	3 yrs.	9 yrs.	+	– + –		? Cured
831	25	M	+	+	0	2 yrs.	5½ yrs.	+	– – – –		Cured
837	19	M	+	+	0	2 yrs.	4½ yrs.	+	– – – –	Negative	Cured
842	27	M	+	+	0	1 year	3 yrs.	+	– – – –		Cured
854	25	M	+	+	+	1 year	10 yrs.	+	+ – –		Cured
877	21	F	+	+	0	18 mos.	9 yrs.	+	– – – –	Negative	Cured
894	26	M	+	+	0	1 year	4 yrs.	+	– – – –		Cured
895	22	F	+	+	0	15 mos.	3½ yrs.	+	– – – –		Cured
903	36	F	+	+	0	1 year	8 yrs.	+	– –	Negative	Cured
940	26	F	+	+	0	15 mos.	7 yrs.	+	– – – –	Negative	Cured
944	26	F	+	+	0	16 mos.	3½ yrs.	+	– – – –		Cured
959	35	M	+	+	0	1 year	2 yrs.	+	– – –		Cured
970	40	M	+	+	0	2½ yrs.	4 yrs.	+	– – – –	Negative	Cured
1,024	24	M	+	+	+	2½ yrs.	6 yrs.	+	+ + –		? Cured
1,033	20	F	+	+	0	1 year	10 yrs.	+	– – – –	Negative	Cured
1,062	30	F	+	+	0	1 year	9 yrs.	+	– – – –		Cured
1,071	27	M	+	+	0	1 year	9 yrs.	+	– –		Cured
1,076	25	F	+	+	0	15 mos.	3 yrs.	+	+ – – –	Negative	Cured
1,096	27	F	+	+	0	3 mos.	14 yrs.	+	– – –		Cured
1,104	26	F	+	+	0	18 mos.	8 yrs.	+	– – – –		Cured
1,148	40	M	+	+	0	2 yrs.	2 yrs.	+	– + +		Uncured
1,175	19	F	+	+	0	18 mos.	6 yrs.	+	+ – –	Negative	Cured
1,187	26	F	+	+	+	20 mos.	7 yrs.	+	– – – –	Negative	Cured
1,189	21	M	+	+	0	2 yrs.	2 yrs.	+	+ + +		Uncured
1,193	28	M	+	+	0	18 mos.	2½ yrs.	+	– – – –		Cured
1,215	25	F	+	+	0	2 yrs.	6 yrs.	+	– + – –		Cured
1,241	30	F	+	+	0	18 mos.	5 yrs.	+	– – – –	Negative	Cured
1,255	26	F	+	+	0	1 year	8 yrs.	+	+ + –		? Cured
1,289	20	F	+	+	0	2 yrs.	5 yrs.	+	– – – –		Cured
1,294	22	F	+	+	+	2 yrs.	4 yrs.	+	– + –		? Cured
1,314	25	M	+	+	0	2 yrs.	4 yrs.	+	+ – –		Cured
1,316	24	M	+	+	0	1 year	7 yrs.	+	– – – –	Negative	Cured

TABLE II.—*Secondary Syphilis (continued)*

No.	Age	Sex	Form of Treatment			Duration of Treatment	Period of Observation	W.R.: Blood		W.R. in Cerebro-spinal Fluid	Result
			As	Hg	Bi			1st	Subsequent		
1,325	24	F	+	+	0	18 mos.	2½ yrs.	+	– – –		Cured
1,338	24	F	+	+	0	2 yrs.	2 yrs.	+	– – – –	Negative	Cured
1,379	18	F	+	+	+	3 yrs.	6 yrs.	+	– + – +		Uncured
1,381	42	M	+	+	0	7 mos.	5 yrs.	+	+ – – –	Negative	Cured
1,395	22	F	+	+	0	2 yrs.	6 yrs.	+	+ – –	Negative	Cured
1,396	34	F	+	+	0	18 mos.	2 yrs.	+	– – – –		Cured
1,414	31	F	+	+	+	2 yrs.	3 yrs.	+	+ + +	Positive	Uncured
1,459	22	F	+	+	0	3 mos.	13 yrs.	+	– –		Cured
1,469	27	F	+	+	0	2 yrs.	6 yrs.	+	– + – –		Cured
1,494	32	F	+	+	0	2½ yrs.	3½ yrs.	+	– + –		? Cured
1,499	40	F	+	+	0	2½ yrs.	5 yrs.	+	+ – – –	Negative	Cured
1,503	21	M	+	+	0	2 yrs.	3 yrs.	+	– – – –	Negative	Cured
1,511	25	F	+	+	0	18 mos.	4 yrs.	+	– – – –	Negative	Cured
1,512	33	M	+	+	0	20 mos.	2 yrs.	+	– – – –	Negative	Cured
1,518	20	M	+	+	+	3 yrs.	3 yrs.	+	+ – –		Cured
1,533	25	F	+	+	+	3 yrs.	4½ yrs.	+	+ + – –		Cured
1,539	30	F	+	+	+	2 yrs.	6 yrs.	+	– – – –		Cured
1,546	27	F	+	+	0	2 yrs.	2 yrs.	+	– – – –		Cured
1,557	28	F	+	+	+	2 yrs.	4 yrs.	+	– – – –	Negative	Cured
1,570	24	F	+	+	0	1 year	2 yrs.	+	– – – –	Negative	Cured
1,581	47	F	+	+	0	20 mos.	2 yrs.	+	– + – –		? Cured
1,644	21	M	+	+	+	2½ yrs.	3 yrs.	+	+ +		Uncured
1,651	40	M	+	0	+	3 yrs.	7 yrs.	+	+ + – –		Cured
1,661	25	F	+	+	+	2 yrs.	3½ yrs.	+	– – –	Negative	Cured
1,679	27	F	+	+	0	18 mos.	6½ yrs.	+	– – – –		Cured
1,686	32	F	+	+	+	2½ yrs.	4½ yrs.	+	+ – –		Cured
1,828	20	F	+	+	0	18 mos.	2 yrs.	+	– – – –	Negative	Cured
1,833	28	F	+	+	+	3 yrs.	3 yrs.	+	+ + – –		? Cured
1,860	26	M	+	+	+	2 yrs.	6 yrs.	+	+ – – –		Cured
1,867	22	M	+	+	0	1 year	6 yrs.	+	– – – –		Cured
1,953	31	M	+	+	+	2 yrs.	5 yrs.	+	– – – –		Cured
1,989	33	F	+	+	+	2 yrs.	3½ yrs.	+	– – – –		Cured
2,002	21	M	+	+	+	2 yrs.	5½ yrs.	+	– – – –		Cured
2,358	28	F	+	0	+	2 yrs.	2½ yrs.	+	– – – –		Cured

taught that mercury and iodides interfered with nature's efforts to eradicate syphilis, and he only used drugs where he considered the body had failed to react. Bruusgaard has been able to trace the after-history and condition of many of these untreated patients, and has shown that a considerable proportion of them recovered completely. It is clear from this that the natural antisubstances are not negligible, and if they are allowed to develop, as in the secondary stage, have then an important therapeutic action, which may explain the better results obtained in secondary syphilis. The idea of an interference with the natural protective substances by specific arsenicals is to-day represented in the alleged increase in neurosyphilis attributed to arsenical treatment. Certain observations of the late Professor George M. Robertson[6] bear upon this question. In the seventh Maudsley Lectures he called attention to the sudden fall, in 1919, in the number of deaths from general paralysis of the insane, a decrease which he said was maintained. He reasoned as follows: The symptoms of general paralysis do not occur with any frequency until seven years after infection, and the patient

usually lives two years after the disease has declared itself. Therefore nine years before 1919 something had happened to account for the observed fall in the accurately recorded death rate of this disease. In 1910, the year in question, Ehrlich introduced "606." This does not accord with the theory that early intensive treatment increases the vulnerability of the central nervous system, nor does the routine examination of the cerebro-spinal fluid in adequately treated early cases favour this hypothesis.

Cure may be presumed where the blood Wassermann reaction has become negative after the first course of treatment and has remained negative subsequently for two years. This has at least the merit of a working proposition. Discrepancies are, of course, met with, as in the following exceptional case:

In 1920 a woman, aged 28, attended the clinic with a primary sore on the lip and a secondary rash (No. 1163). Blood Wassermann reaction and spirochaete test both positive. She was treated for two years and attended regularly for observation up to July, 1926. The blood reactions followed a favourable course and remained constantly negative in the succeeding years up to July, 1926. The cerebro-spinal fluid was also negative. In November, 1926, she contemplated marriage, and her blood was again tested; this and a confirmatory Wassermann taken a week later both proved strongly positive. For six years she had satisfied every criterion: then when it seemed she was entitled to be considered cured, a serum relapse developed suddenly and unexpectedly.

Some of the cases referred to in the tables merit additional details. While primary syphilis sometimes provides the most resistant and most disappointing forms of the early disease (see 1,145, 1,168, 1,509, 1,656, 1,682, 1,766, 1,885, 1,942, 2,350) it is, on the other hand, generally recognized that cure, or apparent cure, may follow courses of treatment so short as to seem on theoretical grounds at least totally inadequate. In a similar way in secondary syphilis cure, or apparent cure, can sometimes be obtained by forms of treatment which fall far short of the two-year standard. Thus a proportion of those recorded as cured received no more than one year of treatment and in exceptional cases even less. This raises the question whether the two-year standard is not unduly severe. The experience gained from the defaulters from my own and from other clinics goes to show how unsatisfactory inadequate treatment usually is and how often it fails, for serum or clinical relapse may develop in the inadequately treated even after a latent period of so many years that cure has been reasonably assumed, as in the following instance:

No. 805 attended with secondary syphilis from November, 1919, to June, 1920. He was given ten intravenous injections of N.A.B. (total 8.7 grams) and twenty-six intramuscular injections of mercury. His blood Wassermann reaction was negative at the end of this course of treatment, and further negative tests are recorded in November, 1920, June, 1921, November, 1921, May, 1922, July, 1923, and October, 1927. His circumstances precluded an examination of the cerebro-spinal fluid. This patient was seen again in 1934, and it was found that he had developed tabes dorsalis. This goes to show that a long series of negative blood tests is only reliable evidence of cure when a full standard treatment has been completed.

To follow up patients is never easy, and although every encouragement is held out to the patient with syphilis to report at regular intervals and keep under observation, sooner or later he or she disappears. Nevertheless, it has been possible to trace and review the present state of two, both early defaulters, whose treatment was meagre, who returned at intervals for observation.

Thus 1,096 was only treated for three months (8.7 grams N.A.B. and seven mercury injections) in 1920; blood Wassermann reaction negative in 1923 and 1927. Recently (January, 1934) a careful general examination failed to reveal any organic disease, and the blood Wassermann reaction was negative.

No. 1,459, treated in 1921 (sore on lip and rash), received seven injections N.A.B. (total 6 grams) with concurrent mercury. She then developed severe arsenical dermatitis, afterwards refusing further antisyphilitic treatment. She was seen again in 1923, 1927, and in January, 1934. On all these occasions the blood Wassermann reaction was negative. Her general health has remained excellent. She declines lumbar puncture: so far, however, as can be ascertained her nervous system is normal.

These two patients have been classified as cured with some misgivings. If this happy end has been achieved they may be counted among the fortunate exceptions who have done very little to merit the result.

Late Syphilis is Not Communicable

A positive Wassermann reaction does not always mean potential or actual infectivity. It should be interpreted in relation to the duration of the disease and the sex of the individual. Thus a man who marries ten or fifteen years after infection need not necessarily fear that his children will be tainted, even where his Wassermann reaction remains positive. Congenital syphilis is transmitted through an infected mother. In such circumstances the man's disease, owing to its duration, is usually no longer communicable: his wife escapes contamination, and therefore the link required to transmit his disease to his offspring is wanting. An exception may be given:

A young man received twenty injections of arsenical compound for secondary syphilis and subsequently an intermittent and incomplete treatment with mercury. Four years later he developed pityriasis rosea, and in view of his history a blood test was made at his own request, which proved positive. Subsequently further interrupted treatment was carried out, but again in intermittent form, and he remained uncured. Six years after the original infection he married, and eighteen months later his wife developed syphilis. This case has many exceptional features, and is unique in my experience.

The sex of the individual with old-standing syphilis has an important aspect. The woman with late syphilis, although her Wassermann reaction is positive, may not be able to infect her husband; nevertheless, during the child-bearing period she remains capable of transmitting the disease to her children. All the risks of congenital syphilis continue to be present; miscarriage may occur, or the child may survive to develop in infancy or later one of the many manifestations of the congenital taint. Fortunately there is a remedy for this state of affairs; if the latent syphilis is detected, and if the expectant mother is adequately treated during her pregnancy, the child escapes contamination. Preventive measures of this kind constitute the best, and indeed the only, satisfactory method of frustrating congenital disease, and this applies to early as well as latent syphilis in the mother. To this there would appear to be one exception: if the cerebro-spinal fluid of the mother is positive, intensive treatment may fail to secure the desired object, as pointed out by Miss Gladys Sandes.[7] As tabes and general paralysis are, however, comparatively rare in syphilized women, only 0.5 per cent. developing such conditions as contrasted with 3 to 5 per cent. in men, this disturbing factor is not considerable.

Those who are historically minded will observe the bearing of these facts upon the medical history of Henry VIII. Mr. Frederick Chamberlin,[8] Dr. MacLaurin,[9] and Mr. Macleod Yearsley [10] have all found it difficult to reconcile Henry's presumed syphilis with the condition of his later children. This is not surprising if we examine the facts in the light of the statement above.

In 1509, at the age of 19 years, Henry was called to the throne, and in the same year married Catherine of Aragon.

At this period he must have been infected and have infected his wife, for from 1510 to 1518 there are a series of stillborn children or children who only survived birth. In the middle of this series, in 1516, Mary was born. She suffered from ozaena, severe headaches, and defective vision, possibly from interstitial keratitis (Macleod Yearsley). The obstetric record of Catherine of Aragon is typical of an untreated syphilized woman infected at marriage. The condition of the other children present no bar to the hypothesis of syphilis in the King, their father. Ten years after infection Henry had a child by Elizabeth Blunt, called the Duke of Richmond. Queen Elizabeth, born still later, was the daughter of Anne Boleyn; and Henry's last child, Edward VI, born in 1537, was the son of his third wife, Jane Seymour.

Old-standing syphilis is not communicable; therefore all the mothers of the later children, and consequently their children, escaped contamination. Queen Mary alone can be considered to have suffered from congenital disease.

Late Syphilis is only Cured with Difficulty and in Exceptional Cases

Some years ago I should have been inclined to regard the prospect of cure in late syphilis as uncertain, or at least improbable. Since the introduction of bismuth therapy there has been reason to modify this opinion. Bismuth is used in early syphilis for its convenience, and especially for its painlessness; it is then as good as mercury. But it is in late syphilis that bismuth has its special application, and since its general employment the chance of curing or arresting nearly all forms of long-standing disease has been notably improved. In passing, it may be pointed out that the results of the arsenic-mercury combination in early disease, as seen in the tables, surpass those obtained where bismuth has been given. This is, however, a matter of a chance sample, and does not therefore represent the actual facts.

Late or chronic syphilis may be conveniently considered in three groups: (*a*) cardiovascular, nerve and visceral; (*b*) cutaneous; and (*c*) serum-positive cases without other definite signs. While the form and duration of treatment is or may be very different in each group, it cannot be too strongly insisted upon that each case merits that individual consideration which the state of the patient and the nature of the symptoms demand.

In the first group the intention of treatment is to arrest the progress of disease and to prevent further damage to an organ or tissue already impaired. A greater or lesser degree of organic disease is present, and it is therefore neither desirable, nor as a rule safe, to impose upon such a patient the kind of intensive treatment which is readily tolerated by a young, robust adult with early disease. Nevertheless some form of prolonged treatment is, as a rule, necessary: the difficulty can be overcome by lengthening the intervals of rest between each course up to three or even six months. As has been indicated above, intramuscular bismuth constitutes the principal agent of attack, and its action can be supplemented by a course of five to ten intravenous arsenicals, either at the beginning of treatment, or at a later stage, if there should seem to be a risk of a focal reaction in a vital organ before protection from such a reaction has been obtained by a preliminary series of the more moderate bismuth or mercury. This applies especially to cardio-vascular disease, where, indeed, the administration of any form of the arsenical substance may be considered undesirable. In intracranial gummata, bismuth should precede neosalvarsan for the same reason. The progress of the patient can be judged by the improvement in symptoms or by the diminishing strength of the Wassermann reaction in units, and for this purpose a series of tests must be made; the "strength" of a single test has, of course, no clinical significance in any form of syphilis, as it bears no relationship to the severity of the infection or the degree of the disease. In tabes dorsalis an indication of this kind may not be available, for it is well known that the Wassermann reaction may die out in the blood and in the cerebro-spinal fluid even in progressive forms of tabes. With this exception a sustained fall in the Wassermann reaction units holds out a prospect of cure under continued treatment—that is, a prospect of the elimination of the infective agent which has caused the pathological changes, but not, of course, a return to a normal condition of the diseased organ or system, the functioning of which, however, can be, and usually is, improved, as shown by the favourable modification of the symptoms which its dysfunction has brought about. While meningo-vascular syphilis is directly influenced through the blood stream by the remedies injected into the muscle or vein, it is held that the choroid plexus, acting as a barrier between the blood stream and cerebro-spinal fluid, prevents the arsenical and presumably the other blood-borne therapeutic substances from entering the cerebro-spinal fluid and influencing the parenchyma, and this criticism applies in particular to the treatment of tabes. Since we know little of the nature of the specific antisubstances which are formed when arsenic or mercury or bismuth is introduced into the body, we have no means of testing whether they do or do not pass from the blood stream into the cerebro-spinal fluid following intramuscular or intravenous injections. We have, however, as has already been pointed out, the clinical and serological evidence of their curative action, when so administered, on the infection of the central nervous system in early syphilis, which implies that in tabes they may be similarly effective when similarly used.

Late Cutaneous Syphilis

The development of a late cutaneous lesion, or a gumma arising in the subcutaneous area, is the most fortunate event that can happen to the individual with latent syphilis, because the appearance of a lesion or lesions of this kind is an almost certain guarantee that the central nervous system is, and will remain, unaffected. The recognition of the indemnity of the central nervous system in these circumstances has even suggested that two strains of spirochaete exist, one with a special affinity for the skin, the other for the nervous elements. Clinical experience is destructive to this theory. Thus on a number of occasions I have observed a man with tabes and his wife with cutaneous gummata, or the circumstances reversed. The reaction to the pathogenic agent thus dwells in the individual, since the same strain of spirochaete can be presumed to have infected both parties. Even more convincing are those very rare cases where tabes and skin gummata coexist, as in the following (No. 968).

This patient, a man aged 51 years, when first seen in 1920 had acquired syphilis twenty years earlier, when he was treated with mercury pills for eighteen months. In addition to tabes dorsalis, severe lightning pains, and a perforating ulcer, he presented over the left leg extensive superficial scarring, marking the site of a late cutaneous syphilide.

Skin gummata, superficial or deep, provide the most convincing example of the efficacy of the arsenicals in the rapidity and completeness with which even extensive areas heal and cicatrize, and this satisfactory result can be obtained by relatively few injections. In consideration of this, and in consideration of the prospect of a similarly responsive reaction should a relapse take place, it would seem that any form of prolonged treatment may be unnecessary, especially as we can rely upon the integrity of the central nervous system in such cases. The possibility of disease in other regions should not be forgotten, the buccal mucous membrane in particular. In long-

standing syphilis in men who smoke, syphilitic leucoplakia of the tongue is far from uncommon. Since this is so often the precursor of cancer of the tongue it provides a factor which must be taken into account should it be discovered.

Serum-positive Cases without Other Signs

The accidental discovery of a positive blood Wassermann reaction in an individual apparently healthy is met with from time to time. The test may have been made from caprice or as a part of a routine examination or for some other reason, and stands in quite a different category from those cases where an examination has been carried out to confirm the diagnosis of some suspected syphilitic lesion. There are undoubtedly individuals who enjoy good health and live to an advanced age, notwithstanding a positive blood Wassermann reaction: in itself, therefore, this is not an unconditional demand for treatment. A complete general examination should, of course, be carried out, including the cerebro-spinal fluid. If, apart from the blood reaction, nothing abnormal is discovered, should the patient be treated or should nothing be done? The decision turns upon the patient's age: in a young individual it would seem prudent to endeavour to bring about a cure, a procedure which will probably be lengthy and tedious, and may end in complete failure. In an elderly man or woman a negative policy will generally be decided upon; assuming an infection in early life the individual in question has passed safely through the period of greatest risk, and it is now unlikely that any of the late manifestations will develop.

Syphilis has been called the great imitator: it might equally be called the great deceiver. Its effects extend into every domain and every branch of medicine and surgery in so many different patterns and degrees as to be outside the competence of any one individual to recognize and discriminate in all its forms. In a different case stand the general principles which co-ordinate syphilis as a single disease, of which the various clinical manifestations are not isolated phenomena, but rather separate links in a complete chain.

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At a meeting, in May in Paris, of the executive committee of the International Organization for the Campaign against Trachoma, it was decided to provide financial assistance for an investigator to study the aetiology of trachoma in a laboratory in a country where this disease was prevalent. A conference will be held in Budapest next spring on prophylaxis; the opening speakers will be Mr. A. F. MacCallan, F.R.C.S., and Drs. Myashita of Japan, Zachert of Poland, Tewfik of Egypt, and Jitta of Holland. The joint conference last May of this organization and the International Association for the Prevention of Blindness gave careful consideration to the question of trachoma in colonial settlements and in Southern Europe. M. Morax opened a discussion on the part played by the gonococcus in tropical countries.

RHEUMATISM AND ITS RELATION TO ARTERIAL DISEASE AND PERIARTERITIS NODOSA

BY

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(With Special Plate)

It will be seen that in the above title there is a linking together of a manifestly common disease with a clinically rare disorder. The principal purpose of this paper is, however, to bring forward observations on some of the recognized manifestations of rheumatic disease as affecting the arterial system, with special regard to recorded instances and a presently observed case of affection of the visceral arteries in rheumatism.

Extent of Body Lesions in Rheumatic Disease

In 1904 Aschoff established the now well-known microscopical tissue changes in rheumatic disease, and since that time it has been common parlance to refer to the Aschoff tissue or nodes in affected areas, more especially in the ventricular myocardium. Later investigators have recorded their findings of Aschoff tissue reaction in other parts of the circulatory system. Klotz noted such effects in the aorta, and MacCallum reported his researches into rheumatic lesions in the auricular musculature. Pappenheimer also carefully investigated the subject, and noted manifestations of the Aschoff type in the cardiac muscle and various parts of the arterial system. Perry, Davis, and Schlesinger, in a recent paper entitled "Thrombophlebitis in Acute Rheumatism," review the literature on the subject of rheumatism attacking the veins, and report three cases of venous thrombosis occurring during acute rheumatism. They consider that though congestive cardiac failure may play a part in some of these cases, there is such a condition as rheumatic thrombophlebitis, and in one of their cases demonstrated Aschoff tissue in the wall of a thrombosed vein. Certainly cases are recorded of thrombophlebitis occurring during chorea in the absence of any clinical cardiac lesion.

It is thus evident that since Aschoff's original discovery much attention has been directed, both in the pathological and in the clinical aspects, towards the extent of the lesions in the body of a person who is suffering from rheumatism. Clinicians who are in close contact with large numbers of cases of the disease continually recognize the wide variety of clinical symptoms and signs that may be presented, and the diversity in duration, type, extent, and prognostic features of the affection. That rheumatic disease is a general infection (or perhaps to meet the views of some authorities, an infection having bacterial, toxic, or allergic generalized effects), possessing actual or potential capacity to damage a wide variety of structures in the body, cannot be doubted. Since Aschoff's publication it is correct to say that cardiac lesions (frequently the most important, however) are but local manifestations of a general disease.

Arterial Disease in Acute Rheumatism

In an article by A. F. Bernard Shaw some interesting general observations are made concerning arterial disease in acute rheumatism. Rheumatic valvular disease is considered by him to arise as an intrinsic valvulitis in accordance with a vascular arrangement in the particular

valves of the heart. He further considers that valvulitis precedes endocarditis, and that probably the latter cannot develop until the inflammatory process has permeated the valve leaflet as far as the line of closure. In other words, the rheumatic lesion extends in the valve tissue via the local vascular mechanisms. This view of the origin of valvular lesions in rheumatism has gained many supporters. The same author outlines the extent of vascular lesions present in a girl, aged 15, who suffered from severe rheumatic fever. The tissue changes of the disease were found in the pulmonary artery, ascending and descending aorta (medial and adventitial coats), coeliac axis, visceral pericardium, both auricular walls, pulmonary valve, tricuspid valve, diaphragm (perivascular and musculo-tendinous portion), and perivascular areas in the tonsils.

Fraser discusses and illustrates the occurrence of lesions in the lymphoid tissues of the pharynx and tonsil in acute rheumatic disease. Aschoff tissue was readily detected by him in the perivascular tissue, and although the small arterioles were not involved, definite intimal proliferative reactions were seen in the medium-sized vessels. The extent to which arterial disease may occur unsuspectedly is well illustrated in a case recorded by McMichael. A young child suffered from a toxic erythema with a pyrexial illness, and a gradual progression to extreme prostration occurred. A subacute infective process of unknown nature was present (luetic disease being definitely excluded). Pathological examination revealed thickening of the coronary arteries, which appeared prominent and opaquely white, and felt like dense fibrous cords, and which, on section, showed narrowed lumen with associated fibrotic myocardial changes; microscopically, obliterative end-arterial disease was seen in the heart wall, kidney, and spleen.

That rheumatic disease of the aorta may be of very serious import is exemplified by personal observation of two instances of rupture of the ascending portion of this great vessel during active rheumatic disease in the heart and elsewhere.

In one case a youth, aged 18, while walking briskly across a field, suddenly collapsed. On examination of his medical record it was found that he had recently been recognized to be suffering from rheumatic fever, and had been advised to rest. The necropsy revealed active valvular and myocardial rheumatism, and a remarkable transverse irregular fissure in the ascending aorta one inch above the valves; also blood had escaped into the pericardium. Close examination of the local aortic tissue showed recent softening; microscopically a diffuse Aschoff reaction was seen. In the other case, almost exactly similar clinical and pathological changes were observed; in fact, the youth was admitted to hospital because of severe rheumatic fever, and collapse occurred quite suddenly, while he was under ward observation, from rupture of an aortic fissure.

It is with special reference, however, to rheumatism and periarteritis nodosa that attention is drawn in this paper. The relation of such to bacterial infection has long been suspected, and modern views hold strongly to the streptococcal agency in rheumatic disease. That infection and toxaemia from a similar organism may, on occasion, produce in the same patient extensive cardiac and visceral arterial disease will be indicated later.

Herlitz, in a recent review of several cases of periarteritis nodosa, notes its possible occurrence in association with a variety of infective processes, more especially, however, in streptococcal infection. This author considers that the same organism may cause rheumatism and periarteritis in the same patient, but that such peculiar association is a variable one, and is possibly connected with some special modification in the recipient soil (arterial system) or in the infective micro-organism.

Age and Sex Incidence of Periarteritis Nodosa

As a matter of special interest it would be advisable to make herein some observations on the more recently recorded facts concerning periarteritis nodosa. Rothstein and Welt, in their recent paper, have extensively surveyed the problem, and much valuable information is given by them. The disease is first of great interest because of its bizarre symptomatology, which adds to the diagnostic difficulties. Periarteritis nodosa was first described by Kussmaul and Marie (1866), although instances of "innumerable aneurysms in the walls of small arteries" had previously been noted. Its incidence is higher in males, and the youngest recorded patient was 3 months and the oldest 78 years. The third decade shows the highest incidence, but twenty-one cases under 15 are reported by Rothstein and Welt.

Clinical Manifestations

The characteristics of the disease are clinically revealed as a fairly acute infection, the more usual symptoms being irregular fever, increasing weakness and loss of flesh, prostration, anaemia, tachycardia, splenomegaly, and leucocytosis. Associated with the general symptoms are certain special phenomena due to widely scattered vascular changes in the body; "rheumatic" pains due to affected arteries in the muscles; albuminuria and haematuria as an effect of closure of renal vessels and kidney infarctions; and intestinal haemorrhages or symptoms simulating colitis when the mesenteric vessels are involved. There may also be various cerebral symptoms through the disease involving the cerebral arterial system. Occasionally erythematous or even petechial rashes appear, and oedema (of renal type). Subcutaneous nodules have been found, representing either thickening in the wall of the blood vessels or actual small sacculated aneurysms (in which thrombosis occurs) in the arterial coats. Such nodules are described as small, firm, pea-sized masses, feeling shot-like, and lying along the course of an artery. These nodules, however, have only been detected in 20 per cent. of cases. Pain in the voluntary muscles may be a very pronounced symptom (some cases, on this account, have been suspected of trichinosis). Arthralgia may simulate rheumatism, and many cases have accompanied or followed sore throat or tonsillitis.

Variations in Clinical Syndrome

Periarteritis nodosa may, for convenience, be grouped into six general clinical types: gastro-intestinal, renal, muscular, cardiac, cerebral, and cutaneous. Any one case, however, may be a combination of the several types, since the clinical variations merely depend upon the same disease process involving arteries supplying the nerves, muscles, or particular organs affected, and the clinical syndrome will vary accordingly. Renal involvement would seem to be a special feature, since in 74 per cent. of cases haematuria has occurred. One very remarkable case reported by Bennett and Levine clinically simulated meningitis, the cerebro-spinal fluid having a high leucocyte count but no demonstrable bacteria, while pathological examination later revealed typical lesions of periarteritis nodosa widely distributed. Acute abdominal symptoms may arise and so simulate a surgical emergency; several cases are reported in the literature in which laparotomy was performed for such suspected diseases as acute appendicitis, perirenal abscess, cholecystitis, etc. In some cases in the later stages sudden collapse has occurred due to intra-abdominal haemorrhage from arterial rupture. The more serious symptoms arise as a result of thrombotic occlusions or rupture of arteries in vital areas; fatal cases due to rupture of acute arterial aneurysms in the brain, lung, intestine, liver, kidney, and pericardium have all been recorded.

Associated Aetiology of Periarteritis and Rheumatism

On considering the true aetiology of periarteritis nodosa most authors regard it as a special response to an infection, but no specific micro-organism has been recognized. The most interesting suggestion is that of its relation to the aetiology of rheumatic infection, an association which is strengthened by the frequency with which periarteritis has been accompanied by tonsillitis, arthritis, myalgia, and cutaneous rashes, etc., and also by the current views that rheumatic disease is directly associated with infection by streptococci. Rothstein and Welt have recorded a case in which lesions due to rheumatic fever and to periarteritis nodosa were both present.

ROTHSTEIN AND WELT'S CASE (*Abstracted*)

Boy, aged 7, no important previous disease and no previous rheumatism. Mild attack of scarlet fever followed by usual desquamation ; three weeks later pyrexia and cervical adenitis. Attacks of severe cramp-like epigastric pain lasting ten to fifteen minutes ; fever, enlarged cervical glands, and the pains lasted five days. Pain occurred in the foot, thumb, and groin, these pains being transient, migratory, and aching, but insufficient to limit movements. Five weeks after initial illness dyspnoea, weakness, and pallor became evident, and diagnosis of rheumatic heart disease was recorded. The temperature then noted to be 106° F., and evidence of mitral lesions present. Leucocytes 16,000 per c.mm. ; blood cultures negative. Congestive cardiac failure. Pathological examination revealed rheumatic valvular disease with typical verrucose vegetations on the mitral, and to a lesser extent on the aortic, valves ; Aschoff bodies in the myocardium on microscopical examination. Gross periarteritis nodosa was revealed involving the pulmonary, coronary, and renal arteries, while microscopically the arterial changes were seen also in the liver, stomach, diaphragm, suprarenal capsules, pancreas, spleen, and a branch of the external iliac artery. The authors consider this case to be an example of the "cardiovascular type of periarteritis nodosa" which "clinically seemed one of rheumatic cardiovascular disease with rapid decompensation and subsequent cardiac failure."

A personally observed case of combined rheumatic disease and extensive visceral arterial disease was carefully investigated by us, and the following descriptive data are given for consideration.

Authors' Case of Combined Rheumatic and Arterial Disease

The patient, a boy of 15, gave no history of rheumatism or of any other illness until seven weeks before admission, when he complained of pain in the back and in several of his joints ; he was noticeably drowsy, on one occasion falling asleep at work. Later his speech became slurred and indistinct ; he grew more and more fidgety and restless, and his gait became bad. On admission his temperature was 102.5° F., but apart from this he presented the typical picture of a severe case of rheumatic chorea. He could not keep still for a moment: his face was constantly twitching and grimacing, he had the characteristic choreic glossal movements, and his lips were bleeding where he had bitten them. His hands, when extended, showed the flexion of the wrists and the hyperextension of the metacarpo-phalangeal joints which is so invariably seen, and when gripping one's hand he writhed about in the bed as though to increase the strength of his grip, which varied in the usual manner. When he put his hands above his head he could not keep the palms facing one another, and the alteration in respiratory rhythm was very obvious. The left knee-jerk was choreic, and the skin on his elbows, heels, and shoulders was red from the rubbing brought about by his unceasing movements. The fundi were normal, and apart from the left knee-jerk the reflexes were normal. Clinically the heart was not enlarged, and the sounds were closed. The pulse was 118 and regular. There was a faint haze of albumin in the urine, but microscopically no cellular elements were seen. There were no rheumatic nodules, and the skin was dry.

DIAGNOSIS AND TREATMENT

A confident diagnosis of chorea was made, and 30 grains of sodium salicylate every four hours was prescribed. At first the patient's pyrexia seemed to respond to this therapy, but during the whole period in hospital his temperature was never normal for twenty-four hours together. The choreic movements remained as violent as ever, and he frequently complained of severe precordial pains, headaches, and limb pains, especially in the hands, for which no cause was apparent. The albuminuria persisted, but no blood was found even with the microscope. The heart remained quite normal clinically and the spleen was never palpable, but he was rapidly losing flesh and obviously going downhill. Throughout the illness the skin remained remarkably dry. Liquor arsenicalis was tried, but this, like the salicylates, did not cause any clinical improvement. A lumbar puncture ten days after admission showed a normal fluid, apart from a slight chloride diminution—673 mg. per 100 c.cm.

After seven weeks the patient became very drowsy, and complained a great deal of headache, but there was no vomiting. Neck rigidity and a Kernig's sign developed, but the fundi were still normal and the reflexes unaltered. A second lumbar puncture was done ; this showed clear, colourless cerebro-spinal fluid under slightly increased pressure, with a protein of 100 mg. per 100 c.cm., chlorides 637 mg. per 100 c.cm., sugar 48 mg. per 100 c.cm., excessive globulin, and a positive permanganate test, but no cells and no organisms. The blood urea was 44 mg. per 100 c.cm. Epileptiform seizures occurred ; a few days later he had four, and died the following day with a temperature of 102°.

POST-MORTEM FINDINGS

Necropsy revealed remarkable pathological changes in various organs. In the heart there was a striking series of nodular thickenings disposed along all the branches of the coronary arterial system, even in direct relation to the smaller intramyocardial branches. Careful examination showed this to be periarteritis nodosa, and examination of the left coronary artery from within its lumen disclosed similar periarterial nodular thickenings and narrowing of the lumen. No intravascular damage or thrombosis was seen. The aorta and pulmonary arteries were normal. The heart muscle showed pallor and evidence of rheumatic carditis, and the mitral valve typical rheumatic verrucose vegetations of very recent origin, this being apparently superimposed upon a more chronic valvular cicatrization. There was no evidence whatever of any malignant endocarditis. The peripheral arteries (radial, tibial, etc.) and cerebral vessels appeared, macroscopically, to be unaffected. The brain was visibly normal. The respiratory tract was clear, and no sinus disease was present. There was diffuse pallor of each kidney, and several small recent infarcted cortical areas. This was associated with diffuse nodular thickenings of the renal arterial system and extreme narrowing of many of the vessels. In the liver, macroscopic nodular arterial thickenings were remarkably widespread. The portal venous system and the biliary tract were normal. Close examination demonstrated that the acute nodular arterial disease had involved the visceral arteries extensively, and this was specially evident in the hepatic, renal, suprarenal, and pancreatic vessels.

The photomicrographic illustrations show the character of the arterial disease. The extensive cellular reaction and narrowing of the vascular lumen is quite remarkable. The presence of inflammatory cells of the type seen in Aschoff tissue reaction is seen, this being especially evident in the section of the vessel in the myocardium.

Comment

The presence of periarteritis nodosa was not clinically suspected in this case, and its detection later was regarded with surprise. The severe precordial pain which could not be explained during the patient's life must have been directly related to coronary arterial disease and consequent myocardial ischaemia. The absence of arrhythmia and bradycardia or any other direct clinical evidence of affection of the conducting mechanism (bundle of His) is

particularly interesting in view of the extensive nature of the coronary and intramyocardial arterial disease.

The epileptiform seizures in the advanced stage of the illness could not be associated with any detectable cerebral, arterial, or other primary intracranial disease. It is surprising, in view of the considerable renal arterial disease, that no further indication than a mild albuminuria was present, and that the blood urea was only 44 mg. per 100 c.cm. The absence of pain in relation to the abdominal viscera is notable ; possibly the absence of any arterial haemorrhages or extensive thrombosis explains this latter phenomenon.

Summary

It is evident from a study of the literature and the cases outlined in this paper that the clinical disorder known as rheumatic fever is essentially a disease affecting numerous structures in the body, but with special affinity for damaging the cardiac and arterial structures. The association suggested regarding a common aetiological agent in these cases is evident, and in the light of recent records it would appear that whereas streptococcal infection or toxaemia in rheumatic fever may confine the tissue damage to certain individual structures—for example, heart valve or nervous system—in other cases a variable degree of severe arterial disease may occur and render itself apparent by any of the symptoms by which periarteritis nodosa is recognized. The possible grave prognostic importance of these latter phenomena is indicated in the cases here discussed.

We are grateful to our senior physician, Dr. Mackey, for his permission to use the case records.

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INFLAMMATORY DISLOCATION OF THE ATLAS

BY

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(With Special Plate)

We are all familiar with the curious sequences of cases which sometimes occur in practice, but few people, I imagine, have had two boys walk into their consulting room one after the other with dislocated cervical vertebrae. Yet such happened to me. One was sent by a doctor in Peterborough, and the other by a doctor in Ilford. The cases were as follows.

Case I

A boy, aged 15, whom I saw on February 19th, 1932, was brought to me complaining of stiffness of the neck and pain on certain movements. He was a twin ; his sister had died at birth. In July, 1931, he suffered from rheumatic pains in the neck, and in August the neck became stiff, bent to one side, and movements were limited in all directions. Since then movements had gradually improved, but were still limited, especially rotation. During July he had rheumatoid pains in ankles, knees, back, and shoulders, but these gradually decreased and were now rarely felt. About fourteen days previously, when sitting on the ground, his small brother, aged 6, fell against him and bent his neck forwards. The head, however, was in its present position before this accident. An *x*-ray photograph taken at Peterborough showed displacement of the atlas on the axis. Another taken at St. Mary's Hospital showed anterior dislocation of the left side of the atlas on the axis, with some downward displacement on that side.

EXAMINATION

So identical were the two cases that one description will do for them both. The head was inclined to the left shoulder and the chin directed to the right. The former seemed to be displaced slightly to the left side. It was held stiffly, and voluntary movements were very limited in extent ; it could be rotated more to the right than to the left. Flexion was limited after a short excursion, and was painful. The pharynx seemed full, and a prominence could be felt on the posterior pharyngeal wall, especially on the left side slightly above the level of the soft palate, so that it was masked and had to be felt for.

TREATMENT

The condition was explained to the father, who refused to allow any active attempts at reduction. The head was immobilized and an extension apparatus applied with a weight and pulley. The patient was kept lying down in this apparatus for ten weeks. At the end of this time the pain had disappeared, but the movements of the head, though freer, were still limited. In February, 1933, in a letter stating that the boy had begun to fail about a month after leaving the hospital, Dr. Clapham wrote: "He is gradually losing the use of his arms and legs, and has begun to stagger. He is now very thin, gets up from a chair like a pseudo-hypertrophic muscular paralytic, but can bend to his toes and rise up without climbing up his thighs. His deltoids are wasted, his grip feeble, and his interossei wasted. He has wrist-drop on the right side. My opportunity to overhaul him was limited. There is a swelling below his occiput." Unfortunately Dr. Clapham died, and his successor has not been able to trace the case.

Case II

A boy, aged 10, was brought to see me for stiffness of the neck and pain on moving the head. About four and a half months previously, enlarged glands had appeared in the neck, chiefly on the left side, after a feverish cold, which lasted a week. Hot fomentations were applied for three weeks. Then the patient had quinsy. Five weeks previously he suddenly developed a stiff neck, and held his head stiffly and would not move it. His tonsils were removed in King George's Hospital, as they were thought to be the cause of the trouble. This, however, did no good. The patient constantly supported his head in his hands, except when lying down. Examination proved that the case was exactly similar to the last one.

The *x*-ray report showed the atlas displaced forward on the axis on the left side—a subluxation. It was thought it might be a developmental error ; there was no evidence of caries. His doctor, after I wrote to him, was still doubtful of dislocation, and took him to St. Bartholomew's Hospital, where my diagnosis was confirmed.

I thought that perhaps an injury had been done him while under the anaesthetic for the removal of his tonsils, but the history showed that the wry-neck was established before the operation, which had, in fact, been performed to cure the condition.

SUBSEQUENT PROGRESS

His father refused all treatment, and I did not see him again. I heard a year later that there was considerable improvement in the condition, but the wry-neck still persisted. On January 1st, 1933, Dr. Thomson Brown wrote to say that the patient was in excellent health, but the neck was still obviously dislocated. He had been taken to a bone-setter, who had wrenched his neck about and told him he would be well in six months. He did not improve, however. In January, 1934, Dr. Thomson Brown reported that in the preceding autumn the boy developed tuberculous glands on the left side of the neck. These were curetted in September, and the wry-neck completely disappeared while he was in hospital. The *x*-ray photograph now shows no signs of displacement.

The dislocation of the atlas vertebrae is very rare, and previously I had never seen a case apart from severe injury. Here, however, were two boys brought by their parents, who had no knowledge of the nature of the trouble.

Cases in the Literature

The condition was familiar from the writings of Grieg and from the excellent paper on the subject by Watson Jones in the *Proceedings* of the Royal Society of Medicine, (February, 1932). He could only find records of eighteen cases. Since that time, however, I have found other cases reported. In most of them the essentials of the history are absent, as the true pathology was not recognized.

Age Incidence and Aetiology

The condition so far, with few exceptions, has been confined to youth, all but two cases occurring under the age of 20. The ages were: at 12 and under, twenty-one cases ; at 13 and under, one case ; at 15 and under, one case ; at 17 and under, one case ; at 22 and under, one case ; over this age, two cases. In none of the cases was there a history of sufficient violence to cause the condition apart from other factors. Some of them have been dramatic in their suddenness. In one case a nurse was dressing tuberculous sinuses in connexion with the glands of the neck ; to see better she gently turned the child's cheek with the back of her hand ; the child choked, became cyanosed, and died. Post-mortem examination revealed pressure on the spinal cord by the odontoid process (Reid).

In my first case operation had been performed upon the tonsils, and it was suggested that manipulations of the head, when the child was under the anaesthetic and when the muscles were relaxed, might have accounted for the dislocation. I carefully questioned the father, and he assured me that the stiffness had been noted before the operation, and that in fact it was the stiffness, which was then thought to be due to tonsillar inflammation, that decided him to have the operation performed. In Swanberg's cases the condition was noted after a tonsillar operation, which may have determined it. Fitzsimmons's second case was that of a girl of 8, who, in jumping, fell upon her head, and then had a marked infection of her throat, after which the condition was noted. The patients in Cases 3 and 4 of the same author were also said to have fallen on their heads ; in Case 3 there is no mention of any inflammatory trouble, but in Case 4 large glands were noted in front of the sterno-mastoid. In each case the condition was attributed to the accident.

So far there have been thirteen females, sixteen males, and two cases in which the sex is not mentioned.

The Associated Inflammation

This seems to be the dominating factor in all the histories. The inflammation has been in the nasopharynx, upper part of the neck, or near the base of the skull. In youthful patients the inflammation has obviously been of the acute type, situated in the region of the nasopharynx —namely, "sore throat," tonsillitis from various causes, or adenitis of the upper cervical glands ; in one case there was periostitis of the mandible (Wittek), and in two cases acute mastoiditis. In older patients both tubercle and syphilis have accounted for the condition. Stammers's case was an excellent example of tuberculous caries in a man of 30.

Pathology

This condition has no well-recognized name. Défosses called it the "maladie de Grisel," while others have invented many methods of describing it. Perhaps inflammatory dislocation of the atlas from axis describes it as closely as possible. Concerning the pathology there have been fewer suggestions. Wittek's suggestion that it was due to an inflammation of the tissue round the odontoid process is perhaps the most ingenious. Increased blood supply to a bone has always been associated with a certain amount of absorption of calcium from the bone. This is best seen in the caries which results from tubercle, where the bone is worm-eaten and loses weight to a marked degree ; it is a common sight to see candidates in examination weighing a bone in their hands to decide whether it has suffered from tubercle or syphilis. But it was Grieg's observations which brought to our notice that increased blood supply meant decalcification and softening of the bone. With this in mind the true pathological interpretation of the condition became easy.

The accident occurs in young children at a time when the bones have not reached maturity, when they are still growing, are more vascular than adult bones, and, therefore, when they participate more readily in the increased vascularity which accompanies inflammatory processes in their neighbourhood.

We have seen that though this form of dislocation occurs in association with inflammatory processes in the neighbourhood of the base of the skull, a certain period of time is necessary for the decalcification to take place after the inflammatory process has started. This is shown in nearly all cases where a detailed description of the disease is given. These facts are confirmed by *x*-ray photographs, which reveal that decalcification has taken place in the anterior part of the ring of the atlas. This might be thought to be congenital if it were not for the excellent photographs published by Mr. Watson Jones, which show the ring of the atlas again fully calcified four months later.

The anterior and lateral part of the ring of the atlas is softened by decalcification, and so the attachment of the transverse ligament becomes insecure, and the odontoid process is no longer held in position. All the other ligaments attaching the odontoid to the atlas vertebrae partake in the softening. When this has happened the scene is set for some slight but sudden movement to cause displacement between the two bones, which now have little to hold them together, and the atlas passes forward upon the odontoid vertebra.

It all depends upon the degree of excursion of the bone as to what occurs. If the excursion is bilateral and extreme the odontoid process will immediately press upon the spinal cord and sudden death will result as in Reid's case, quoted above. If the excursion is unilateral and slight only one side will be subluxated, and the spasm of the muscles will fix the subluxation and make up in some degree for the lack of ligamental restraint.

With the passing away of the inflammatory process recalcification will take place, and it may be that the subluxation will be reduced of itself, but the edges of the articular processes are sharp and well defined, and tend to hitch the one on to the other ; this makes spontaneous reduction difficult. Nevertheless, it has occurred quite unexpectedly in several cases, early in one of Fitzsimmons's cases, and after two years in one of mine, where it may have been helped by manipulation of the neck during the curetting of the tuberculous glands.

Clinical History

The histories are mostly similar, and seem to register a very clear picture of the condition. The child has an inflammatory condition of the nasopharynx or upper part of the neck. One to two weeks later stiffness of the neck is complained of, and the head is held in a wry-neck position. In most cases there is no history of violence,

and the matter is treated as part of the inflammatory process, which indeed it is. In one or two cases where there has been a fall it is not quite clear if the condition was due to it, though in some cases violence was adjudged the cause.

The child assumes the ordinary position of wry-neck, and there is a certain amount of rigidity and fixity of all the muscles of the neck, and movements or attempts at movements are resented as painful. At first little is thought of the condition ; in few cases is it considered necessary to have an *x*-ray photograph taken at this time. In those cases, however, where a photograph has been taken several things are noted. There is a distinct subluxation of the atlas upon the odontoid and a marked lessening of the shadow of the anterior part of the atlantoid ring compared with the bones lower down the neck ; indeed, this may be so marked that a congenital defect may at first be suspected.

In the commoner unilateral subluxation there is no pressure on the spinal cord, owing to the ample space provided in this region, though this must be encroached upon. Pressure symptoms have been noted to come on almost at once, as in Ogilvy's case, where they appeared on the fourth day and disappeared again on the eleventh ; or they may come on late, as in my first case. On examining the pharynx with the finger a distinct irregularity and protrusion of bone can be felt at the level of the soft palate. This is more evident on one than the other.

Treatment

A correct recognition of the factors of the condition will dictate the line of treatment to be advised. Whether control of the neighbouring inflammatory process is the first essential step, or the old rule of reducing a dislocation at the earliest possible moment is the most important, is difficult to decide. In most cases, however, considerable time has elapsed before the diagnosis is made and the case comes to the surgeon, so that the question does not arise, and then replacement at any early date is to be desired. This method was adopted in Mr. Watson Jones's two cases with complete success. The head was fixed in plaster for ten weeks ; this was followed by exercises and a return to normal. No surgeon with any imagination, however, will contemplate this form of treatment lightly. The anaesthetic, by relaxing the muscles, removes the last barrier to the free movements between the two bones, and with free movements sudden death is likely to ensue. After reduction the application of a bandage round the neck cannot be altogether free from danger. In most cases it would be necessary, frankly, to explain the risks to the parents. In my two cases the parents at once vetoed any active treatment ; although in one the parent had no objection later to a bone-setter wrenching the boy's neck.

One is therefore reduced to fixing the head in the wry-neck position with weight and pulleys to see if reduction will occur as the deformity and disability become less. I have no doubt also that at the tender age of most of these patients the gradual development of the parts will render less and less apparent any deformity which might ensue. Some of the patients have been kept in the recumbent position for months with excellent results.

My own belief is that these cases are more common in a slight degree than is generally supposed, and that many of the temporary wry-necks associated with inflammation of the upper part of the neck are in reality such cases in a mild form, which rectify themselves and leave no trace. It is certainly curious that if one case has been recognized and impressed upon the memory, other obvious ones seem to be encountered shortly afterwards.

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GUMMA OF THE BRAIN

WITH A REPORT OF A CASE TREATED SURGICALLY

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(*With Special Plate*)

There is a very prevalent belief that gumma of the brain is rather a common form of intracranial new growth, but this view is not borne out by statistics. Thus Cushing,[1] whose figures cover a period of thirty years and go back well into the pre-Wassermann and pre-salvarsan era, had only twelve cases of gumma among his two thousand patients with verified intracranial neoplasms ; Sachs,[2] again, had but four cases in eight hundred intracranial operations—that is, 0.5 per cent. of the whole. Gumma cerebri is thus to be regarded as decidedly among the rarer types of space-occupying lesions of the intracranial cavity, and it is felt that operations for the condition are of sufficient rarity to justify the publication of the case reported below, while the unusual features of the lesion, and the resultant difficulty in the differential diagnosis, make it one of special interest.

Case Record

A. A., 37 years, a hammerman, was transferred to the Victoria Infirmary from Kilmarnock Infirmary on February 21st, 1934, suffering from headaches, mental deterioration, Jacksonian epilepsy, and gradually increasing right-sided paresis, of eight months' duration.

There was a definite history of syphilitic infection, diagnosis of which was made in 1919 ; energetic treatment followed, after which his Wassermann reaction, previously positive, had become negative.

In July, 1933, he came home from work complaining of very severe pains in the head. These persisted, and two weeks later he had his first Jacksonian seizure. Further fits followed at varying intervals ; occasionally he would have two or three in twenty-four hours, at other times periods of freedom of several days would occur. Gradually it was noticed that he was losing power in his right hand, and later the right leg became involved also. This was his state when he was admitted to Kilmarnock Infirmary on October 13th, under the care of Dr. Hamilton and Dr. Currie, and thereafter, in spite of energetic anti-syphilitic treatment, his condition gradually deteriorated, and by the end of October he was bed-ridden. The fits continued, as did the severe headaches, and latterly these had been associated with periods

of drowsiness, while his mental state had deteriorated very noticeably.

The fits were typically Jacksonian; starting in the right thumb and forefinger, the clonic spasms spread gradually up the limb to elbow and shoulder, finally involving the right side of the face. Except on one doubtful occasion, consciousness was never lost, while the fits were invariably followed by a temporary aggravation of the paresis.

Examination.—On admission to the Victoria Infirmary he presented the following appearances: a tall, thin, pale, and obviously ill man, he was noticably drowsy and incooperative, and answered questions with difficulty and with marked inaccuracy; so much so that his story, when checked with that from other sources, was found to be false in almost every detail. *X*-ray examination of the skull was negative; the Wassermann reaction of the blood was positive. The following signs were found on neurological examination. The fundi were normal, as was the visual acuity, while the visual fields, as far as could be ascertained, were full. There was a right-sided facial paresis of the upper neurone type, moderate in degree; the tongue deviated to the right when protruded. It was impossible, because of his mental state, to test his sensory functions, while the extreme hemiparesis made an examination of gait and station impossible; the right arm and leg showed a very marked palsy of upper motor neurone type, more pronounced in the upper limb, with marked spasticity and some contracture of fingers, wrist, and elbow. The right arm reflexes were exaggerated, as was the right knee-jerk, while the right plantar reflex was extensor, with ankle-clonus.

Operation.—This was done on March 7th, 1934. Under local infiltration with novocain, supplemented with morphine and scopolamine, a large bone-flap was turned down over the lateral aspect of the left hemisphere. The bone was rather thicker and more vascular than normally. The dura, whose surface appeared normal, was under moderately increased tension. When a dural flap had been turned down the exposed convolutions were found to be everywhere yellow, oedematous, and flattened, especially in the upper part of the field.

In this region, in the upper portion of the post-central gyrus, was a rather depressed, sharply defined area, about a centimetre in diameter, the surface of which presented a firm, purplish-grey appearance. In order to obtain a piece of tissue for examination an incision was made in this area, when at once a quantity of thick material like pus poured out. The possibility that we were dealing with a chronic brain abscess occurred at once, and the incision was hastily plugged with a pledget of cotton, while a report on the characters of the purulent fluid was awaited. It proved to be composed largely of mononuclears, while no organisms could be seen in smears, and on the strength of these findings a diagnosis of a breaking-down gumma was made, and it was decided to try extirpation of the lesion.

Complete evacuation with the sucker was followed by occlusion with silver clips of a few small cortical vessels running into it, and thereafter it was possible to seize the thick fibrous wall and gradually remove it from its bed by traction, combined with gentle wiping away of the adherent brain with cotton pledgets wet with Ringer's solution. Ultimately the capsule was removed intact, but in a rather torn state, so that measurements were difficult, but it was estimated that the lesion, before evacuation of its contents, was probably about the size of a small hen's egg. The dura was closed completely, the cavity left by the removal of the gumma being drained by a small strip of rubber dam. The bone-flap was replaced and the scalp sutured in the usual way.

Pathological Report.—The tissue, which was examined microscopically, was definitely gummatous, and no difficulty was experienced in recognizing it. In sections taken from different portions of tissue the different areas which compose a gumma could be identified. In the periphery there was an area of dense character, encapsulating the more cellular and softened tissue, and forming a wall of demarcation from the surrounding congested brain tissue. This area showed connective tissue cells of new-formed character, mixed with cells of lymphocytic and polymorphonuclear type. An area which was more cellular and highly vascular was situated internal to this. The features of this part of the section were the numerous dilated and well-filled blood vessels, and groups of cells of epithelioid and plasma type. The central area was necrotic, and showed softening and caseous change. In this area cells of inflammatory character, polymorphonuclear and mononuclear in type, were present with occasional giant cells of irregular outline, and with no attempt at tubercle formation. Both in the new formation and in the adjacent brain tissues groups of mononuclear cells almost resembling septic foci were seen; but the softened contents from the cyst-like cavity showed no evidence of pathogenic or tuberculous organisms.

The vascular changes were quite definitely those of a syphilitic lesion. A large number of the blood vessels showed thickening of their intima with swelling of the endothelial cells, and a few revealed an obliterative endarteritis. Other vessels showed a periarteritis with a distinct appearance of cuffing of the vessel wall.

Progress.—Recovery was uneventful, and the patient was discharged to a convalescent home on March 22nd, when he could already walk across the ward with some assistance. A mild degree of aphasia, present since the operation, was showing some signs of improvement. He reported again on May 3rd, when his condition had greatly improved. He walked with a barely noticeable limp, his former aphasia being shown only by some hesitancy in speaking and an occasional difficulty in finding a word. There was still some spasticity and weakness in the right hand and arm. Mentally he was a transformed individual, alert in manner, and displaying a pronounced sense of humour when he related his recollections of his pre-operative state.

Discussion

Forty years ago the treatment of brain tumours, despite a few brilliant successes by Horsley and Macewen, was in an early stage of evolution, while the discovery of the Wassermann reaction was still ten years distant. The customary treatment of a case of suspected cerebral tumour was a lengthy course of mercury and potassium iodide, on the principle that if antispecific treatment failed but little remained to be done. In 1893 Sir Victor Horsley[3] read his classical paper in which he pleaded with the profession to shorten this period of antispecific treatment to six weeks, and urged that they should hand over to the surgeon any brain tumour patient whose condition had not very definitely improved by then.

In 1934, however, thanks to the great advances in the technique of intracranial surgery and to the development of the Wassermann reaction, Horsley's plea has become of historic interest only, and in the vast majority of cerebral tumour cases the finding of a negative Wassermann reaction is now followed by speedy recourse to operation. Cases of true brain tumour do, however, occur in which the blood or cerebro-spinal fluid shows a positive reaction, a fact perhaps sometimes not sufficiently appreciated by the physician. Moersch[5] has said: "None of the serological data, the condition of the fundus, nor any one cardinal symptom are pathognomonic of either brain tumour or syphilis"; while Martin[4] describes two cases of brain tumour with positive Wassermann reaction which were treated for lengthy periods by antispecific measures, and points out that the presence of a positive reaction does not necessarily mean that the symptoms of involvement of the nervous system are of syphilitic origin. Bagdasar,[6] again, in a paper from Cushing's clinic, states that the neurologist is still too much inclined to see specific lesions whenever the Wassermann reaction is positive in the blood or cerebro-spinal fluid, and maintains that what he terms this "abuse of the diagnosis of nervous syphilis" is very widespread to-day among neurologists.

Even granted that a lesion is of syphilitic origin, it should, however, be emphasized that antispecific treatment may be quite ineffective. This can be readily seen to apply in such a case as ours, in which a thick, fibrous wall isolated the interior of the lesion from its surround-

ings. Horsley pointed this out many years ago, and demanded concrete proof of the healing of a cerebral gumma by medicinal treatment. In this view he was supported by Puusepp,[6] who holds also that certain cases of chronic syphilitic meningitis should be submitted to surgical treatment when uninfluenced by iodides, and claims good results. Martin,[4] again, points out that there are cases of syphilis of the nervous system in which operation may favour the activity of medical treatment, when this was previously of no avail.

Altogether, there is much to be said for Bagdasar's view when he writes:[6] "Ainsi donc, nous conseillons d'opérer toujours les malades suspect d'être atteints de gommes cérébrales, l'operation montrera d'ailleurs le plus souvent qu'il s'agit d'une tumeur cérébrale et très rarement d'une gomme."

We may sum up the position by saying that our attitude towards gumma of the brain should be that of Horsley towards cerebral tumour forty years ago—if no improvement results after a short course of medical treatment the case should be handed over to the surgeon for removal of the lesion, or, failing this, for decompression.

A very unusual feature in our case is the extraordinary resemblance the lesion presented to a chronic encapsulated intracerebral abscess. In the literature available we have failed to discover any note of a syphilitic focus with such appearances in this situation, although one is familiar with the occurrence of pronounced central liquefaction in gummata in other organs, notably in the liver. Again, Garland and Armitage[7] have stated in a recent paper that gumma of the brain is to be distinguished from tuberculoma in that it is probably always attached to the dura mater, and in this our case provides the exception to the rule, the dura being neither adherent nor otherwise involved. The point to be noted is, however, that in the differential diagnosis of gumma the fact of its rare simulation of chronic brain abscess should be borne in mind.

We must express our indebtedness to Dr. Currie, Dr. Hamilton, and their house-physician, Dr. Gemmill, for very careful notes of the patient's condition during his stay in Kilmarnock Infirmary, while to Dr. John Anderson, director of the clinical laboratory, we wish to tender our thanks for his examination and confirmation of our slides, and for a great deal of valued help.

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The following international medical post-graduate courses will be held in Berlin this autumn. From October 1st to 13th there will be a course in internal medicine with special regard to tuberculosis, followed by a course in tuberculosis from October 15th to 20th. Throughout this last-named week there will also be a course in obstetrics and gynaecology. A post-graduate course in diseases of the ear, nose, and throat will extend from October 1st to 13th; another in paediatrics from the 22nd to 27th; and a third in surgical intrathoracic disease, with special reference to pulmonary tuberculosis, from October 29th to November 2nd. Individual training classes in all branches of medicine are held each month, including bedside and laboratory practice, and concentrating on practical work rather than on theoretical studies. Programmes and further particulars are obtainable from the Berlin Academy for Medical Post-Graduate Training, Robert Koch Platz 7, Berlin, N.W.7.

CAESAREAN SECTION

DELIVERY OF 254-DAY EXTRAUTERINE FOETUS

BY

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MASTERTON, NEW ZEALAND

(With Special Plate)

Modern textbooks give good descriptions of the methods of escape and survival of the ectopic foetus. I find them especially lucid in *Diseases of Women*, by "Ten Teachers." Whitridge Williams includes a long bibliography, while Gould and Pyle (*Anomalies and Curiosities of Medicine*, 1898) give a summary of recorded cases to that date.

It would appear that operation has generally been very much more difficult than in the case recorded below. This happy state of affairs followed on the complete retention of the placenta within the tube, no part escaping to form general adhesions. A factor in the non-recognition of the condition was the position of the sac above the uterus, and its growth upwards as if in continuity. It is consoling, however, to find it stated, on the authority of the "Ten Teachers," that these cases of erosion "may show no symptoms to suggest that pregnancy is in any way abnormal."

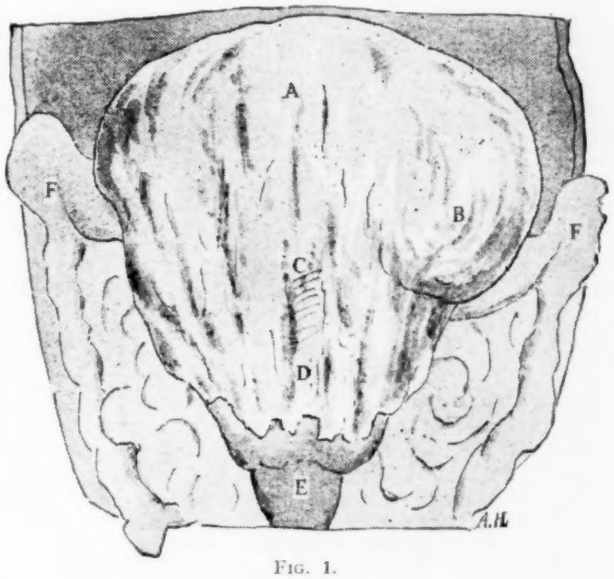


FIG. 1.

A, Omental sac containing foetus.
B, Foetal head.
C, Omentum in front of placenta.
D, Position of omental adhesions to abdominal wall.
E, Uterus below placenta.
F F, Colonic flexures.

I am not able to state just when complete erosion of the gestation sac took place. Probably the extrusion of the foetus in its unruptured amnion was slowly progressive. The fixation of the lower omentum to the old scar evidently held it in such position that upward growth pushed the foetus between this and the transverse colon, enabling a wrapping of omentum to form a protecting nest. I think Fig. 3 explains this. Of the other illustrations in the text, Fig. 1 shows the position as first observed on opening the abdominal cavity. Fig. 2 shows the position of the parts with omentum removed. The foetus is above the enclosed placenta, while the cord and tubal isthmus diverge from the tubal rent. It also shows the amniotic cap on the foetal head, and the position of the adherent transverse colon.

Case Record

The patient was a woman, aged 35, who had been married for eight years, and who gave the following history. Beyond slight indigestion and constipation she had always been healthy, the menstruation being regular and free from pain. Five years ago, three years after her marriage, I had operated on her for right-sided ectopic gestation at about the seventh week. The left tube and ovaries were normal, and recovery was uneventful. There had been no other pregnancy. Menstruation had continued normally.

PRESENT ILLNESS

First consultation, August 15th, 1932. The patient complained of weight in the pelvis and constipation, and was ten days over her menstrual time, the last period dating July 5th, 1932. Menstruation did not recur, and vaginal examination during the second and fourth months showed apparent enlargement of the uterus in keeping with corresponding stage

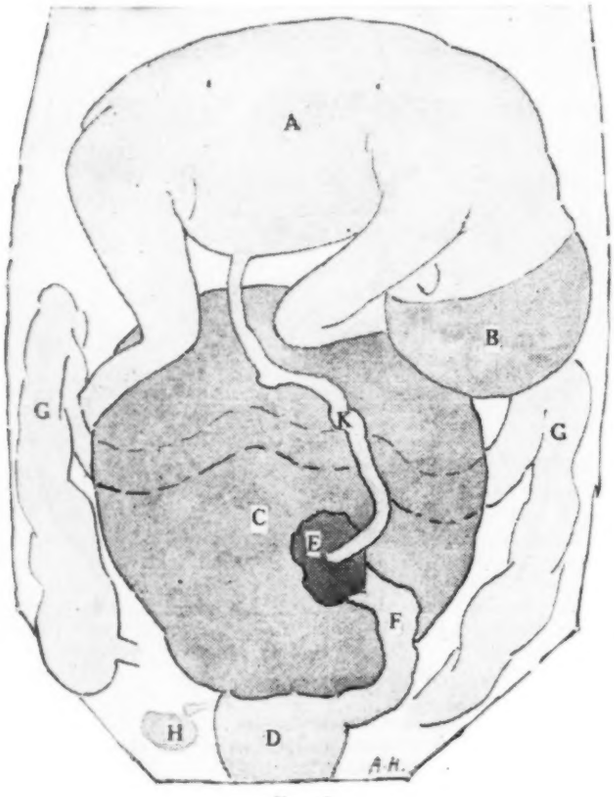


FIG. 2.

A, Foetus.
B, Foetal head with amniotic cap.
C, Placenta in tube.
D, Uterus.
E, Rent in tube.
F, Left tubal isthmus.
G G, Colon.
H, Right ovary.
K, Umbilical cord.

of pregnancy. The position was good, and the parts were freely movable. There was nothing abnormal to note in connexion with the adnexa. The urine was normal. Constipation continued, accompanied by pain across the abdomen below the umbilicus. Evacuation of the bowel was difficult, but relief was afforded for twenty-four hours or more by the use of enemata. This condition persisted all through the pregnancy, becoming steadily worse, and constituting a source of much anxiety: it was attributed to adhesions from the previous operation. Apart from the constipation and associated pain there was no other abnormal symptom.

The uterus was not examined per vaginam between the sixteenth and twenty-sixth weeks, but frequent observation was made by palpation through the abdominal wall. The increase in size was still in keeping with the duration of the pregnancy. During the seventh month it was noted that the foetus lay persistently transverse, with the head to the left, the body of the child being high. Examination revealed no parts of a second foetus, but a resistant mass above the pelvic brim and below the foetus raised the question of cystic tumour or foetal abnormality. This mass increased noticeably during the eighth month, at which time the foetus was also developing well.

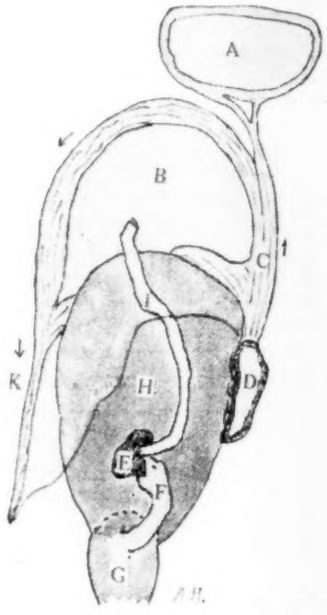
On the 250th day of pregnancy I took an *x*-ray picture of the abdomen (see Special Plate). After consultation, arrangements were made for Caesarean section, but as the patient was fairly comfortable, and as it was desired to give the child all the time possible, operation was delayed until the 254th day. The foetal heart had ranged at 140, but during the last day before operation it rose to 174. During this last twenty-four hours the mother had intermittent severe pains, as if in labour.

OPERATION

On March 16th, 1933, using avertin and subsequent ether, I made a lower mid-line incision, and found easy access. The condition can best be understood from the accompanying drawings, which are from rough sketches made at the time. The foetus lay outside the uterus in transverse position, head to the left. It was close up under the liver and stomach. Below was a rounded tumour comparable in size to a six

FIG. 3.

A, Stomach.
B, Omental sac containing foetus.
C, Posterior omental sac.
D, Transverse colon.
E, Rent in base of ampulla.
F, Left tubal isthmus.
G, Uterus.
H, Tubal ampulla enclosing placenta.
I, Umbilical cord.
K, Great omentum adherent to abdominal wall.



months pregnant uterus. The omentum was adherent along the old abdominal scar, and covered the greater part of the lower mass. The foetus was covered behind, above, and in front by a thickened and fibrosed omental sac. The transverse colon lay at the back, below the foetus, being firmly adherent to the tumour, which formed the lower part of the sac in which the foetus lay. Apart from these adhesions the colon was free at each side, and the small intestines were wholly free.

The child was delivered through the anterior layer of the omentum. The sac contained an amount of meconium-stained fluid estimated at about 16 ounces. There were ill-defined foetal membranes lining the sac. The top of the child's head was enveloped in a close-fitting cap stronger than the rest. Exploration of the tumour mass below was easy, as there was not much in the way of adhesions. It consisted of a normal-sized placenta within the distended tubal ampulla, which was tough and firm. It lay free, except for adhesions to the transverse colon and light omental adhesions at its upper pole. It was not adherent to the anterior apron of omentum behind the old scar. At its base there was an opening, through which the cord emerged to ascend to its foetal connexion, and through which the foetus had escaped from the tube. The cord was well developed, and of medium length and thickness. Below the opening the tubal isthmus, much thickened (1 in.) and elongated (6 in.), led to the left uterine cornu.

The uterus had reached the size of a two months pregnancy. It was fitted into the base of the tubal mass in such a manner as to give, on first examination, the impression of a continuous whole. The stump of the right tube, remaining after the former ectopic operation, and a small right ovary, were attached and free from adhesions. The overgrown tube containing the placenta was detached at the uterine cornu. The only difficulty in completing its removal was the separation of the transverse colon. Omental tissue covered these defects. A large rubber tube was inserted to carry off oozing products, the upper omental cavity being left to drain into the lower area. There was no trouble with bleeding.

CONDITION OF THE INFANT

The child, a female weighing 5 lb. 12 oz., was born alive, and there was little difficulty in establishing breathing. It was a normal pink baby, with hair and nails in keeping with its development. It only survived nine hours; for most of that time it breathed well and was of good colour, but did not cry. In spite of the attention of a capable nurse life could not be maintained.

CONDITION OF THE MOTHER

The patient suffered much nervous reaction following the operation. On the second day she had five epileptiform convulsions. These came on suddenly, as if she had had a smack in the face, and were followed by spasm and convulsion of the whole body. Within fifteen minutes they passed off, and she was quiet and conversing again. They did not recur. She complained of dullness of vision with flashes before her eyes, and at times was forgetful and irrational. The urine was normal, the bowels acted well, there was no distension, and she took nourishment well. Her blood pressure was 144 systolic, reduced to 115 at the end of a fortnight. The temperature did not go above 100° F., though the pulse was 110 to 120 during the first week. There was not much discharge from the wound; the drainage tube was removed on the third day, the stitches on the tenth day, and the wound healed without trouble. There was slight bleeding per vaginam on the third, fourth, and fifth days, followed by a uterine cast on the sixth day. This was complete, and measured about 3 by 2½ inches when spread flat.

Unfortunately, convalescence was interrupted at the end of the third week by a venous thrombosis of the left leg. The patient was, however, discharged at the end of seven weeks from the date of operation. She is now (after twelve months) in good health, and can drive a motor car and engage in the usual activities of life. Her menstrual periods returned at the end of the third month after operation, and have remained normal. There is very little trouble from constipation.

The ninth conference of the International Union against Tuberculosis will meet in Warsaw on September 4th, 5th, and 6th under the patronage of His Excellency the President of the Republic of Poland and under the chairmanship of Professor Pieztrzynski. The discussion will be limited to three main subjects. Biological subject: "Biological Variations of the Tubercle Virus," opening report by Professor Karwacki (Poland). Clinical subject: "Tuberculosis of the Bones and Joints: Treatment, medical and surgical," opening report by Professor Putti (Italy). Social subject: "The Use and Organization of Tuberculosis Dispensaries," opening report by Professor Léon Bernard (France). The organization committee has prepared an attractive programme of receptions and excursions; the latter will enable members of the congress to visit the chief anti-tuberculosis institutions as well as the most picturesque scenery in various parts of Poland. Members of the International Union are invited to take part in the conference without fee. Persons who are not members of the Union and who wish to take part as members of the conference must forward their application, together with a contribution fee of 50 zlotys, exclusively through the medium of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1. Reductions on hotel prices and railway fares will be granted to members of the congress.

A CUTANEOUS MANIFESTATION OF VITAMIN A DEFICIENCY

BY

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(With Special Plate)

The published records show that vitamin A deficiency is common in other parts of the world at the present time, but until about a year ago the occurrence of this condition in man had only been diagnosed with certainty when eye changes such as night-blindness, xerophthalmia, and keratomalacia had been found.

The case reported below suggests that minor forms of vitamin A deficiency in this country are commoner than supposed, and may at the same time show signs distinct from those already mentioned.

SYMPTOMATOLOGY OF SKIN LESIONS

Writing of cases of vitamin A deficiency seen in China, Pillat[3] describes certain skin lesions. He says that in severe cases of vitamin A deficiency the skin feels dry and becomes scaly; a marked reduction of sweating is noticeable and comedones may form. The nails become dry and brittle. Nicholls,[2] working in Ceylon amongst prisoners living on a diet inadequate in vitamin A and other constituents, also describes the dry skin. Minute, hard, dark-coloured papules appeared in these cases, their distribution being on the legs, abdomen, shoulders, and elbows. On examination, the papules were found to consist of enlarged sebaceous glands plugged with altered sebum. They did not tend to suppurate, but hard, dry, thin scabs formed over and around the papule. A similar papular eruption is described by Loewenthal.[1] It was first observed by him during a quarterly inspection of the Uganda central prisons. The prisoners had been fed on diets low in vitamin A content, and it was found that every sufferer with other signs of vitamin A deficiency—namely, xerophthalmia and night-blindness—showed cutaneous changes in addition. Clinically, the skin was dry, this dryness affecting the whole body with the exception of the face and scalp. A papular itching eruption was present with a limited distribution. It was found chiefly on the extensor aspects of the arms, and on the front and outer surfaces of the thighs. From eighteen patients papules were excised and examined microscopically. The papule arose from a pilosebaceous follicle; the mouth of the follicle was sealed with a plug of horny tissue, among which polymorphonuclear leucocytes and lymphocytes were demonstrated. Eighty-one prisoners were segregated for observation, and of these seventy-one suffered from night-blindness, forty-five with xerophthalmia, and seventy-four with the skin lesion. For these cases no local treatment was given for the skin. The diets remained unchanged except that 1 oz. of cod-liver oil was given daily to each man. After nine weeks' treatment all cases with night-blindness and xerophthalmia were cured, while 98 per cent. of the dermatoses were also cured. From Nyasaland, twenty-three years ago, there came a report of similar skin lesions. Stannus,[4] working amongst cases of pellagra, found that a few patients manifested a skin condition quite distinct from that associated with pellagra. It consisted of a folliculitis with retention of secretion; the enlarged follicles were prickly to the touch, and had a black areola.

Dr. Stannus and Dr. Loewenthal have kindly seen the case described below and have stated that the skin presents the same features as shown in their own cases.

CASE RECORD

History.—T. H., a male aged 10 years, was admitted to the Queen's Hospital for Children on April 16th, 1934. One week previously he had attended the casualty department for sore throat, vomiting, and abdominal pain, for which he had been ordered a milk diet. On the 15th his mother noticed a rash on his body, though it is certain from the

character of the eruption that it had been present for much longer. In answer to a direct question, the mother said that she thought the skin had been dry for several years. The general health of the boy had been good, although he had never been a vigorous type of child. On questioning it was learnt that his diet previous to April 8th had consisted of the following:

Breakfast.—Bread, jam, tea, with skimmed condensed milk; occasionally butter.
Dinner.—Generally fish with potato. The fish consisted of either dried boiled haddock, or of dogfish, the latter bought fried at a fish shop. Sometimes a sausage or the yolk of an egg was given, the yolks totalling three per week or less.
Tea.—Bread and jam; tea.
Supper.—Bread and jam.

His mother stated that the child disliked meat and green vegetables, cow's milk, milk puddings, and white of egg, and that he had not touched meat for years. According to the mother there had been no important previous illnesses and no previous skin eruptions, but the accuracy of these statements cannot be relied upon. There was one other child in the family, who was having a better diet, and who, on examination, manifested no abnormalities. The diet of the patient presents a low content of vitamin A—the breakfast, tea, and supper provided practically none of it, while on certain days of the week the vitamin content of the dinner was also low in vitamin A value.

State on Admission.—The boy was pale, and appeared to be too ill to stand up for any length of time. He was not thin, and was fairly well grown. His height was 4 ft. 6 in., and weight 4 st. 3 lb. He was apathetic, and wanted to lie down, but answered questions intelligently. The temperature was 100.4° F. His skin was dry, except on the face, the dryness being particularly noticeable over the legs and feet. An eruption was present, and consisted of hard, dry papules, one to two millimetres in diameter, many of them red in colour. Thin scales were present over and around each papule, while in the centre of the papule was a pin-point of dry material, looking silvery under a lens, plugging the sebaceous gland around which the papule had formed. The papules were reddish in colour, largest, and most numerous on the extensor surfaces of the lower limbs. Other areas affected were the extensor aspect of the elbows, both shoulder regions, the buttocks and sacral region, and a small patch in the right pre-auricular region. There were numerous horny-feeling comedones on each knee; the nails of hands and feet looked drier than normal; the hair and scalp appeared normal. A small area of moist eczema was present at the left angle of the mouth.

The eyes showed no xerosis, but there was injection of the vessels of the conjunctiva running from the inner and outer canthi of the eye to the cornea. A distinct yellowing of the sclera conjunctiva was also present. Examination for evidence of night-blindness proved negative. There was no hoarseness; the tongue was red and smooth, being denuded of its superficial papillae, while the gums of the upper jaw were swollen, retracted over the carious upper incisors, and presented the appearance of pyorrhoea. The heart, lungs, and alimentary and central nervous systems showed no abnormalities. The stools were normal and there was no abdominal pain or distension. There was no excess of epithelial cells in the urine. A blood count showed little abnormality. Red blood cells, 4,020,000 per c.mm.; haemoglobin, 88 per cent.; colour index, 1.0; white blood cells, 13,700 per c.mm. (polymorphonuclears 80 per cent., lymphocytes 14 per cent., hyalines 4 per cent., basophils 2 per cent.).

Treatment and Course of Illness.—No local treatment was applied to the skin, and the diet given included meat, eggs, fish, green vegetables, milk, and butter. For the first few days in hospital the boy refused meat, but has since taken it readily. Four drachms of cod-liver oil were given daily by mouth, and at the end of a week there was a marked improvement in his general condition. There was slight pyrexia at first, but in four days the temperature reached 98.5° F., and at the end of his first week in hospital the child appeared more vigorous and started voluntarily to sit up in bed. The skin became less dry and scaly, and at the end of a fortnight the papular rash commenced to subside. In about six weeks the skin looked and felt almost normal, although tiny horny plugs could still be seen and felt, plugging the sebaceous glands of the skin; this was particularly noticeable over the legs. When these plugs were extruded a small crater-like orifice, as described by Loewenthal, could sometimes be seen with a lens. Eye pigmentation disappeared, and the injected conjunctival vessels subsided. The gums looked healthier at the end of the third week; the tongue papillae had also regenerated by this time.

At the present time children attending the medical out-patient department at the Queen's Hospital for Children are examined for evidence of similar cutaneous lesions. Already several cases have been found with apparently similar lesions of much slighter grade, and in each of these cases there is a history of a diet which by ordinary clinical standards is inadequate. Each child has been given a preparation of vitamin A, and the results which have so far been obtained are encouraging.

SUMMARY AND CONCLUSION

A case is described in which the diagnosis of vitamin A deficiency is based: (1) on the presence of a dry, harsh "goose-skin," with a papular eruption most marked on the extensor surfaces; this eruption being similar to that described by Loewenthal and his associates and by Nicholls and others; (2) on the history of a diet almost certainly deficient in vitamin A; (3) on the complete disappearance of the cutaneous abnormalities when the boy was given a good mixed diet with the addition of cod-liver oil.

I would like to thank Dr. Helen Mackay for her kindness in allowing me to publish this case, and for her helpful criticisms.

Note by Helen M. M. Mackay, M.D., F.R.C.P.

In a recent article in the *Archives of Disease in Childhood* I have suggested that the eye symptoms of vitamin A deficiency are not necessarily the earliest symptoms of this condition. Since writing that article I have had the privilege of discussing the question with Dr. L. J. A. Loewenthal and Dr. W. H. Kauntze, both of the Uganda Medical Service, and have read the valuable article by Dr. L. Nicholls, who is working in Ceylon. From their observations it is, I think, established that it is often possible to diagnose vitamin A deficiency from the cutaneous changes alone. That the skin changes which they describe are due to vitamin A deficiency seems certain. Keratinization of epithelial tissues is generally regarded as the characteristic pathological change resulting from vitamin A deficiency, so that the skin lesions they describe fit perfectly into the picture. Moreover, the administration of cod-liver oil alone, or, in two cases, of a concentrate of vitamin A alone, regularly brought about cure of the skin changes in Dr. Loewenthal's cases. The case here described by Dr. Goodwin is without doubt of the same type. Since seeing this child we have been on the look out for other such cases in the out-patient department of the Queen's Hospital for Children, and have already found several children with a slight grade of an apparently similar condition of the skin. In each of these patients there is a history of a poor and ill-balanced diet. If by the therapeutic test of giving vitamin A a number of such cases can be shown to be due to a deficiency of this vitamin, it will be established that this deficiency is far from rare in this country.

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[2] Nicholls, L.: *Indian Med. Gaz.*, 1933, lxviii, No. 12, 681.
[3] Pillat, A.: *China Med. Journ.*, Shanghai, 1929, xliii, 907.
[4] Stannus, H. S.: *Trans. Soc. Trop. Med. and Hyg.*, 1912, v, No. 3, 112.

The vacancy caused by the death of Dr. H. Watson Smith, medical director of the Lebanon Hospital for Mental Diseases, at Beirut, in Syria, has now been filled. The London General Committee of the hospital has secured the services of Dr. R. Stewart Miller, late medical director of the Khanka Mental Hospital, near Cairo, who retired from that post a year ago under the agreement whereby Egyptians replaced British civil servants. Dr. Miller brings to his new work great experience of mental diseases and administration, as well as the knowledge of Arabic and French which is so necessary in Syria.

Clinical Memoranda

LATE RECURRENCE OF CARCINOMA

(With Special Plate)

The following case is, I believe, worth recording.

A woman aged 61, a matron's assistant, came to me on March 24th, 1933, complaining of shortness of breath, loss of weight, and insomnia; the latter she attributed to having retired from her employment. I saw her again on July 17th, when she complained of lumps on her head and pains in the arms and back. She had lost 2 st. in weight, and was very sallow. There was a swelling the size of half a walnut on the left eyebrow, soft in the middle, and fading into the frontal bone; several small lumps were scattered over the scalp, much concealed by hair. She then stated that she had had an operation on the vulva in 1921, and this was confirmed by Dr. E. F. Page of Solihull, who wrote saying she had had the vulva excised for epithelioma.

X-ray photographs, taken on July 24th, showed many areas of rarefaction, of all shapes and sizes. The Wassermann reaction on July 21st was negative. The right ilium was swollen to the size of a large orange, with areas of egg-shell crackling, but there was no sign of recurrence in the vulva. The cancer cells appear to have remained dormant for twelve years in the ilium before becoming disseminated. I had permission to take a section from the scalp and ilium, and Dr. S. C. Dyke kindly reported on them.

Report on Nodule from Scalp

Such parts of the edge of the tumour mass as are available for examination show a well-formed fibrous tissue capsule limiting the periphery of the tumour. The tumour itself consists of spheroidal and polygonal cells; it is almost without stroma, the cells lying irregularly packed against each other. In one or two places a fibrous tissue stroma is present, and here the tumour cells appear to be growing from the fibrous tissue core after the manner seen in papillomata. The cells are large, with somewhat reticular nuclei and bulky cytoplasm staining densely with eosine. They are highly anaplastic and dedifferentiated, and it is impossible to state their type with certainty. They suggest an origin in squamous epithelium, but none of them show prickle cells, and there is no evidence of either eleidin or keratin formation. Free haemorrhage has occurred in certain parts of the tumour mass.

I am much indebted to Mr. Patrick for his help in this case, and to Dr. Dyas and the Royal Hospital for the *x*-ray photographs and report.

Wolverhampton. C. L. SPACKMAN, M.B., Ch.B., D.P.H.

A CASE OF ABDOMINAL PREGNANCY

The following case seems sufficiently unusual to merit record.

E. B., a married woman 32 years of age, was admitted to the Glendon Hospital on February 14th suffering from pain in the lower abdomen. She gave a history of amenorrhoea extending over a period of seven and a half months. She had had three children, the last being about 5 years old. On palpation of the abdomen the fundus uteri was found to be just below the level of the umbilicus; the external os was not dilated, and there was no sign of bleeding. Sedatives were prescribed for pain, and she was kept in bed. Her symptoms subsided within a week, but she was not allowed up until the twelfth day. Two days later she was discharged from hospital feeling much improved. On March 13th she was readmitted to hospital, again suffering from severe abdominal pain. The fundus uteri was just above the level of the umbilicus, and as no foetal or maternal sounds were audible on auscultation of the abdomen, a diagnosis of dead foetus was made. On March 23rd an attempt was made to induce labour by the insertion of bougies into the uterus, and it was then found that the bougies could not be inserted beyond half their length. On the following day the patient had slight labour pains, and the bougies were expelled along with a small amount of blood. Following this the pains subsided and all bleeding stopped. On the morning of April 6th the patient was again seized with severe pain in the abdomen, which was now markedly distended and rigid. She had a temperature of 102° F., and a pulse of 110. Laparotomy was advised, but the patient refused to agree to any surgical intervention. Next day her condition was worse and she at last gave consent to operation.

The abdomen was opened by a right paramedian incision, and the parietal peritoneum was found to be much thickened —in some places a quarter of an inch thick. The peritoneal cavity was filled with blood, and a dead female foetus of about eight months' development was found lying in a "false uterus" made up of parietal peritoneum, transverse colon, and great omentum, coils of small intestine, and the pelvic peritoneal pouches. The placenta was implanted upon the great omentum and transverse colon, and coils of small intestine. By ligating the omentum in several places the placenta was cut away from it, but it was quite impossible to remove all placental tissue from the coils of small intestine for fear of causing grave injury to the bowel. After removing all that could be removed of placenta, the uterus and tubes came into view, the former being somewhat enlarged, and neither uterus nor tubes showing signs of previous rupture. The uterus was retroverted and had been pressed against the posterior abdominal wall by the developing foetus. Both ovaries were slightly enlarged. The peritoneal cavity was swabbed dry, all bleeding controlled, and the abdomen closed without a drain.

The temperature gradually dropped following the operation, and on the tenth day, when the stitches were removed, the temperature and pulse were normal. On the twelfth day after the operation the temperature rose to 100°, and there was a slight serous discharge from the lower end of the wound. On the fourteenth day the lower end of the wound had opened up somewhat, and small bits of placenta came away, following which the temperature again dropped to normal. Similar bits of placental tissue continued to be discharged at irregular intervals for a further period of two weeks, following which the sinus steadily reduced in size, and eventually healed. The patient was discharged well on June 5th. Since the date of discharge E. B. has reported herself on many occasions, and at the present time she is engaged in her usual domestic and agricultural pursuits, and feels quite well.

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MULTIPLE PERIPHERAL NEURITIS AS A COMPLICATION OF MEASLES

Despite the fact that the complications of measles, and more particularly those affecting the nervous system, are notoriously polymorphic, I have been unable to find in a fairly exhaustive literature any but a passing reference to the occurrence of multiple peripheral neuritis as a complication of this fever.

Three months ago I was called in to attend an adult male who, fifteen days previously, had been in contact with a case of measles. The patient was of good physique, a total abstainer, and had never had measles before. His temperature, catarrhal symptoms, and rash left no doubt that I was dealing with a case of measles of moderate severity on the fourth or fifth day of the disease. On the seventh evening of the disease the patient was restless, complained of pain in his feet and legs, and, on attempting to get out of bed, discovered that his knees would not support him. His temperature was 99.6°, round which level it remained during the rest of his illness. Loss of power in the legs and feet was marked, and neither the ankle- nor the knee-jerks could be elicited. Search was then made for any concomitant diphtheritic infection, but no clinical or bacteriological evidence of this infection was forthcoming.

On the ninth day of the disease the paresis had spread to the arms, and pain of a tingling "pins-and-needles" character became a marked feature in all the limbs, and eventually necessitated the administration of morphine for its control. Tactile sensibility and sense of heat and cold were both slightly impaired in the affected parts. On the tenth day of the disease weakness of the facial muscles was evident, and in twenty-four hours the rare clinical picture of a double

facial paralysis of the peripheral type was fully developed. About this time it was also noted that liquids were being regurgitated through the nose, and a paresis of the soft palate was revealed. On the twelfth day a right-sided external oblique paralysis was detected, and it was also noted that the respirations were hurried and grunting in type, although both the diaphragm and the intercostal muscles appeared to be acting fairly well. There was no sign of any pulmonary complication.

The patient's full consciousness was maintained throughout, and there was no sign of any paralysis of the sphincters. Pain became even more difficult to control in the affected parts, as the choice of drugs had to be limited to those which would not further embarrass the man's vital centres. In view of this parlous state it was decided to administer 30 c.cm. of serum obtained from a convalescent measles patient. This was accordingly done. On the day following the injection the temperature fell to normal and the general condition of the patient was perceptibly better. On this day also it may be noted that the patient's son developed measles, which ran its usual course. On the fifteenth day the facial paralysis had definitely improved, and during the following week the various paralyses began to clear up from above downward at a remarkable rate, till at the end of ten weeks all signs, with the exception of slight diminution of both knee-jerks, had vanished. By the end of the twelfth week no abnormal signs could be detected, and freedom from pain and tingling was complete.

The question, of course, arises as to whether the administration of the serum produced the consequent benefit in this case. While I hesitate to detract from the value of Nature's wonderful store-cupboard of remedies, I, from a purely clinical standpoint, cannot but feel that some of the benefit produced in this case—in particular the fall in temperature—must be attributed to the serum.

Shrewsbury. D. A. URQUHART, M.B., CH.B.

A CASE OF GASTRIC NEOPLASM: GASTRECTOMY

Among points of rather special interest in the case reported below perhaps the most unusual is the fact that the patient presented himself to his doctor after discovering a "lump" in his abdomen and, when seen later, himself suggested the diagnosis of a cancer of the stomach.

The patient, aged 38, a man of rather unusual intellectual attainments, was referred by his doctor for an abdominal tumour. The history given was that he had suffered from a weak stomach since a child, but latterly the disturbance of flatulence had become accentuated and more persistent than formerly. His appetite was impaired, and he complained of periods of mild upper abdominal discomfort. He had not at any time suffered pain, and consulted his doctor on discovering a lump. Examination disclosed the presence of a movable, irregular mass, descending from under the left costal margin. There was a history of war-period dysentery: other examinations were negative. *X*-ray examination showed a filling defect of the stomach, with delay in emptying.

Laparotomy, with a right paramedian incision, revealed a growth of the pyloric end extending on to the body of the stomach. The subpyloric glands were palpable and enlarged. Resection was proceeded with, the duodenum closed, and the jejunum anastomosed to the proximal stomach, as in Moynihan's modification of the Polya-Balfour operation. Recovery ensued.

Of particular interest is the insidious progress, and the fact that a correct diagnosis was made by the patient himself. The case well illustrates the dominant and, indeed, often the only, feature of early gastric carcinoma —the disturbances associated with flatulence. Sections of removed stomach showed a glandular carcinoma, with extensive invasion of the muscle coats. The pyloric glands, on section, were found to be infiltrated with new growth.

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Reviews

FRACTURES AND DISLOCATIONS

Textbooks on these subjects are too apt to follow a stereotyped form in which all the best-known and typical lesions are described, and the best-known methods of treatment indicated, including, of course, those introduced or favoured by the authors. The practitioner confronted with one of the rarer injuries will probably not consult in vain a recent work on *The Management of Fractures, Dislocations and Sprains*.[1] The authors have flung their net wide, but have not retained the whole catch. Recognizing that fractures of the skull must often involve injuries to the encephalon, they enlisted the services of the late Dr. Charles E. Dowman, a specialist in the discussion of those injuries. Likewise Dr. James Barrett Brown of St. Louis is responsible for the chapter on fractures of the bones of the face and jaws, the treatment of which requires so much familiarity with special measures.

In their preface the authors, Dr. J. A. KEY of St. Louis and Dr. H. E. CONWELL of Birmingham, Alabama, point out that all cases cannot be treated at once by specialists, and that therefore the general practitioner should at least know what is the appropriate emergency treatment for every fracture, and be prepared to improvise and apply it. The necessary equipment for fracture treatment in a hospital of 100 to 200 beds is described, and considerable stress is laid on the advisability of making one officer responsible for the care of the splint room and its contents. This room should be kept under lock and key. For emergency treatment the authors appreciate the value of the Thomas splints, but make the rather surprising statement that these are seldom available, and therefore they recommend preferably extempore board splints, consisting of two longitudinal and three transverse strips of wood nailed and screwed together. Among the complications of fracture and fracture treatment fat embolism is discussed, but only as a rare complication, under which most British surgeons will be prepared to place it. Another more rare complication is the acute traumatic bone atrophy of Sudeck, a case of which is here recorded.

The frequency of road accidents, both in America and in Britain, has made such complications as gas gangrene and tetanus commonplaces of emergency surgery, which before the war were comparatively rare. In the description of the first-named we find a statement that "the patient appears unusually sick." One feature of the disease which has struck surgeons during and since the war has been the state of euphoria, for which, unfortunately, there is no physical justification in such cases. The passing in late years in most States of the Union of Employers' Liability and Workmen's Compensation Acts has made it necessary to include a consideration of medical problems relating thereto in a comprehensive work such as is now under notice. Students of the international aspects of this matter will find on page 169 a useful table of rates of compensation for various mutilations in various States. Fractures of the spine, with and without accompanying trauma of the medulla or nerve roots or trunks, necessarily occupy a large space in this book. It is noteworthy that, in the authors' experience, some half of the cases of fracture are unaccompanied by paralysis. Compression fractures of the spine have lately been attracting much notice, both in Europe and in America. The authors will not be found lacking in attention to this branch of the subject. Its treatment is

[1] *The Management of Fractures, Dislocations and Sprains.* By John Albert Key, B.S., M.D., and H. Earle Conwell, M.D., F.A.C.S. London: H. Kimpton. 1934. (Pp. 1,164; 1,165 figures. 63s. net.)

well set forth. In reference to Kümmell's disease the view is taken that some cases so called are really cases of undetected compression fracture. When symptoms persist fusion operation after the manner of Hibbs is indicated.

A great deal has been written about low back sprains and backache in the United States of late years, and perhaps more importance has been given to the subject in America than in England. The analysis of 2,050 cases quoted by the authors from the *Journal of Bone and Joint Surgery* is of interest. More than half the cases were attributed to osteo-arthritis and 30 per cent. to atrophic arthritis. In only a small number of cases was fracture implicated. The methods of examination and the manipulations in treatment are very carefully gone into by the authors, who are duly cautious in their conclusions, and do not lose sight of the possibility, or even probability, of malingering and of the important part played by psychological causes in the development of painful back. Part II deals in sixteen chapters with the diagnosis and treatment of specific injuries. Its comprehensive character may be inferred from the inclusion of sprains, overpronated strained foot not being omitted. The authors frankly own up to a difference of opinion in the choice of methods of treatment of extensive compound fractures. It is agreed, however, that "the results are about the same."

We think that the fact that Dr. Key is professor of orthopaedic surgery in Washington University, and that Dr. Conwell is much concerned with the treatment of accidents on a great railway, has broadened their views in several directions, and as a result we have a very comprehensive work to which practitioners will not refer in vain. We only wish that, instead of the one volume weighing six pounds, it were bound up in two volumes.

RELIEF OF PAIN IN CHILDBIRTH

Eighty years ago the question of anaesthesia during childbirth was confused by archaic theological disputations; to-day it has assumed political proportions, to the no small disadvantage of the patient. Dr. F. NEON REYNOLDS has written a clear, concise, and eminently sane account of the present position in a small book entitled *The Relief of Pain in Childbirth*.[2] The first chapter is introductory, and the second, dealing with the treatment of morning sickness and other minor ailments of pregnancy, is sketchy and out of place. The remainder of the book has to do with the various forms of anaesthesia and analgesia used during the first and second stages of labour. Dr. Reynolds concludes that paraldehyde given per rectum, preceded in the case of a primigravida by a preliminary injection of morphine and scopolamine (spelt "scapolamine" throughout the book), is the best method of relieving pain during the first stage of labour which is available for general use. He believes that there is no risk of proctitis if the paraldehyde is mixed with olive oil, but fails to draw particular attention to the fact that the paraldehyde must be fresh. At least one case of sloughing of the rectum necessitating a colostomy has been reported following the use of "decomposing" paraldehyde. For the second stage of labour Dr. Reynolds recommends either chloroform given through a Junker inhaler or gas and oxygen, if a skilled anaesthetist is present. He disapproves of the use of chloroform capsules (used during the late war and reintroduced for use in obstetrics) by midwives, but suggests that they should be permitted to give paraldehyde during the first stage of labour.

Dr. Neon Reynolds's book can be recommended to all who practise midwifery. Many readers will probably concur in the opinion that the use of scopolamine and paraldehyde by midwives would guarantee the maximum alleviation of suffering that can at present be effected with safety.

[2] *The Relief of Pain in Childbirth.* By F. Neon Reynolds, M.C.O.G., F.R.C.S.Ed. London: Medical Publications, Ltd. 1934. (Pp. 114. 10s. 6d. net.)

CLINICAL CARDIOLOGY

Any book which is obviously the result of a prolonged and careful study of a group of facts as these are observed at the bedside has a claim to notice in the columns of a medical journal. Dr. BRUCE WILLIAMSON'S volume entitled *Vital Cardiology*[3] falls within this description. The author has enjoyed large clinical opportunities; he has applied his mind to the academic problems of cardiac disorders; he has studied critically methods of treatment; and in some directions he has come to conclusions which differ from current teaching, and even bring this under direct challenge. It would therefore be disappointing were the outcome of all this industry to prove unworthy of attention and consideration. Such a negative result has certainly not happened. On the contrary, the student of cardiac disease, and particularly, perhaps, the experienced practitioner, will find interest in Dr. Williamson's pages, even though the interest is not at all points accompanied by unqualified conviction.

In the choice of his title Dr. Williamson has a double aim. The first is to advocate the interpretation of the evidences of cardiac disease on the basis of physiological and clinical observation, while the second is to reduce to insignificance the value of the instrumental and graphic methods which have become prominent in recent years; these, it is suggested, are not infrequently misleading, make prominent what is essentially secondary and subordinate, and, at the best, have largely had their day. Further, it is urged that the problems of cardiac disorder are not to be solved by isolation of cardiovascular disturbances from the general examination of the patient; and to save cardiology from the "status of a specialty" the intervention of Heaven is prayed in aid.

It is, however, in its positive propositions that Dr. Williamson's book mainly professes its value. Its central doctrine is that only in two directions can the function of the myocardial cells vary—namely, in the rate and in the force of their contraction; that, excluding psychic and other extrinsic causes of excessive cardiac rate, such excess is the first evidence of myocardial failure; and that as rapidity shortens the diastolic interval during which an active coronary circulation is secured, any degree of sustained tachycardia means inevitably progressive deterioration of the value of the cardiac force. From all this it follows that a quickened pulse rate must be an object of earnest inquiry, and that when an obvious explanation cannot be discovered such an event means impending cardiac failure. Particularly is this true when from the clinical history or the physical signs there are reasons for believing that the heart muscle has suffered damage, with an inevitable limitation of the measure of its reserve force; while treatment demands agencies which will reduce a pulse rate that necessarily carries the certainty of increasing disability. A third conclusion is that the recognition of such pulse disturbance before symptoms appear is a therapeutic opportunity which, if properly seized, will avoid or postpone further mischiefs. This central thesis, here stated only in general terms, is applied over the whole field of circulatory disturbances and cardiac disease—irregularities of rhythm, valvular murmurs, paroxysmal tachycardia, bradycardia, heart-block, angina pectoris, blood pressure, dyspnoea, cyanosis,

[3] *Vital Cardiology. A New Outlook on the Prevention of Heart Failure.* By Bruce Williamson, M.D., M.R.C.P. Edinburgh: E. and S. Livingstone. 1934. (Pp. 344. 15s., postage 9d.)

and the rest ; and in each section, as well as in a special chapter, treatment is discussed in some detail. On one practical measure there will certainly be disagreement—namely, the value of prolonged rest in early evidences of mitral disease ; here Dr. Williamson maintains that the customary practice favours the establishment of mitral stenosis and the early development of auricular fibrillation, as shown by the more frequent appearance of these conditions in women rather than in men, and in accordance with the proposition, "Stasis and stenosis are inseparables."

It may fairly be said that there is much repetition in the book, but against this comment it must be recognized that Dr. Williamson is proposing and defending a thesis, and is applying a general principle to a wide and varied field of observation ; if he often preaches from the same text it is to emphasize the far-reaching value of his doctrines. Again, it may seem that at times he professes little respect for those whose talk is of murmurs and machines, and who have failed, he suggests, to recognize the truth which he himself has discovered, while upon this discovery he takes to himself no small measure of content. In these directions he may excite some sharp opposition. His capacity for denunciation is illustrated by his description of a particular method of prescribing digitalis as both a "vandalism" and an "anachronism." None the less he has written, not hastily, and out of a large and considered experience, and even if his academic argument is put aside there is much in his book of practical value.

ANATOMY OF OUR FOREFATHERS

Professor JOHN CAMERON's work, *The Skeleton of British Neolithic Man*,[4] broaches, and partly answers, a number of exceedingly interesting orthopaedic problems. For example, why should the osseous anatomy of the lower limbs possessed by the modern inhabitants of Britain differ so decidedly from that of former inhabitants? The author finds that the change from the older to the newer anatomy took place at, or soon after, Norman times. Down to, and including, Saxon times, Englishmen had platymeric femora, and platycnemic tibiae and astragali, which, although unmodern in their markings, have not, so far, received a special name. The Neolithic and Bronze Age inhabitants of Mediterranean lands, Professor Cameron finds, had the same markings in the bones of their lower limbs as had the early inhabitants of Britain. He presumes that these characters of the limb bones are of a functional nature, and that they have disappeared from the limbs of the modern inhabitants of Britain because nowadays we walk, run, and hold ourselves differently from our forebears. Professor Cameron is inclined to seek for an explanation of platymeria, etc., in the rapidity rather than in the degree or kind of muscular action in the prehistoric British. It is to be hoped that orthopaedic surgeons may take up these problems of prehistoric anatomy which our author has expounded so ably.

Some years ago Professor Cameron gave up his chair in Dalhousie University in order that he might complete his investigations into the craniology of human races. Since his return to England he has made full use of the rich collections of human material stored in the Museum of the Royal College of Surgeons of England. The book now published is the first harvest of his leisure. It is one which will be welcomed by all who are interested in the early history (or prehistory) of the British people.

[4] *The Skeleton of British Neolithic Man.* Including a Comparison with that of other Prehistoric Periods and More Modern Times. By John Cameron, M.D., D.Sc. London: Williams and Norgate, Ltd. 1934. (Pp. 272 ; 51 figures. 15s. net.)

PSYCHOPATHOLOGY

Dr. WILLIAM BROWN has taken the opportunity afforded by the call for a third edition of his book on *Psychopathology and Psychotherapy*[5] to submit it to a thorough revision and amplification. The book is not intended to give the reader a systematic survey of the dynamic psychologies ; it consists of a number of personal contributions, revealing in a considerable measure the writer's own personal views and methods of treatment. Great stress is laid upon the social possibilities of psychology. The author considers, indeed, that the extent to which psychology develops and admits of practical applications during the next few decades may well decide the fate of civilization, whether intellectual and spiritual progress will continue or mankind will rush down through world war to ruin. He suggests that psychology, working in close alliance with philosophy and true religion, can certainly prevent this. Since this book is intended to appeal to the medical man and the educated layman, it is doubtful if the highly technical and mathematical appendices are very suitably incorporated within its pages.

The second edition of Dr. ERNEST NICOLE's book on *Psychopathology : A Survey of Modern Approaches*[6] includes numerous additions throughout the text and four new chapters dealing with ethnology, schools of psychology, and applied psychology. The bibliography has been enlarged and brought up to date. The student of psychiatry will find this book most useful, and the call for a new edition shows that it has met a definite need.

Notes on Books

Practical contributions to the art of treatment as this is demanded in daily practice are always welcome, and this particularly when they are based upon the personal experience of the contributors. Such is the character of *Modern Treatment in General Practice*,[7] issued under the editorship of Mr. CECIL P. G. WAKELEY. Each of the fifty-three chapters is devoted to a particular topic, and each carries the endorsement of a writer who has special experience in the subject to which he has directed his pen. The result is a volume very serviceable and particularly useful as a presentation of modern methods and the application of these to general practice. An interesting feature is the judgement which has directed the choice of contributors ; these represent most of the medical schools of the country, and the teaching has thus a catholic quality. As an example of the scope of the book may be mentioned the chapter on head injuries in children, written by the editor.

The importance of physical chemistry in immunity reactions is obvious, and writings which assist in the formation of a conception of the mechanism of these reactions must be valuable. The recent book of Dr. R. DUJARRIC DE LA RIVIÈRE, *L'Immunité par Mécanisme Physico-Chimique*,[8] consists, however, only of a series of papers on disconnected aspects of the subject, none of which have been thoroughly studied, and contains little mention of physical chemistry. The most interesting sections are that dealing with the flocculation of antimeningococcal sera in the presence of a mixture of

[5] *Psychology and Psychotherapy.* By William Brown, D.M., D.Sc., F.R.C.P. Third edition. London: E. Arnold and Co. 1934. (Pp. 252. 12s. 6d. net.)

[6] *Psychopathology : A Survey of Modern Approaches.* By J. Ernest Nicole, L.M.S.S.A., D.P.M. Second edition, revised and enlarged. London: Baillière, Tindall and Cox. 1934. Pp. 283. 12s. 6d.)

[7] *Modern Treatment in General Practice.* Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S. London: Baillière, Tindall and Cox. 1934. (Pp. 426 ; 16 plates. 10s. 6d.)

[8] *L'Immunité par Mécanisme Physico-Chimique.* By R. Dujarric de la Rivière. Paris: Masson et Cie. 1934. (Pp. 73 ; 2 plates. 18 fr.)

tincture of benzoin and an alcoholic extract of meningococci, and that on the adsorption of toxins by red blood corpuscles.

In his pamphlet on Treatment by Training[9] Dr. GEBHARDT goes deeply into the physiological theory of physical exercises of all sorts as they affect the different tissues of the human body, and gives an account of the courses of training found useful in treating both invalid and normal subjects at Munich. His pages are designed for the instruction of medical men, trainers, masseurs, and indeed all who may find themselves responsible for physical jerks, so-called, of any description.

Professor HINTZE's Geography and History of Nutrition[10] sets out to give the reader an account of the countless foods and diets favoured by members of the human race throughout the world and throughout the ages. The first five chapters summarize what is known to us about the tables kept by the Egyptians, Babylonians, Israelites, Greeks, and Romans in days long gone by; there is reason to believe that the manufacture of beer from cereal grains was practised in Mesopotamia so long ago as 5000 or even 7000 B.C. Later chapters deal with the history of nutrition in Europe, the North, Asia, Africa, America, and Australasia; it appears that the number of plant species ordinarily used as food is about four thousand, all the world over. The book is, naturally enough, a compilation; Professor Hintze writes clearly, and has made a skilful selection from the very extensive literature of the subject with which he deals. The book should be of interest to all specialists in dietetics.

The French edition of the work on the Mechanics of the Lungs,[11] by Dr. PARODI of Milan, adapted by Dr. Lefèvre, gives the author's account of this obscure and complicated subject; Parodi argues that the lung is an organ with essentially mechanical functions, and concludes that these functions (which are capable of expression in physical terms) must be taken into account in its treatment when diseased. The practical applications of his views are given in a chapter at the end of the book, which should be in the hands of all interested in the subject with which it deals.

[9] *Übungsbehandlung.* Von Dr. K. Gebhardt. Jena: Gustav Fischer. 1934. (Pp. 60. RM.2.80.)

[10] *Geographie und Geschichte der Ernährung.* Von Professor K. Hintze. Leipzig: G. Thieme. 1934. (Pp. x + 330. M.21.)

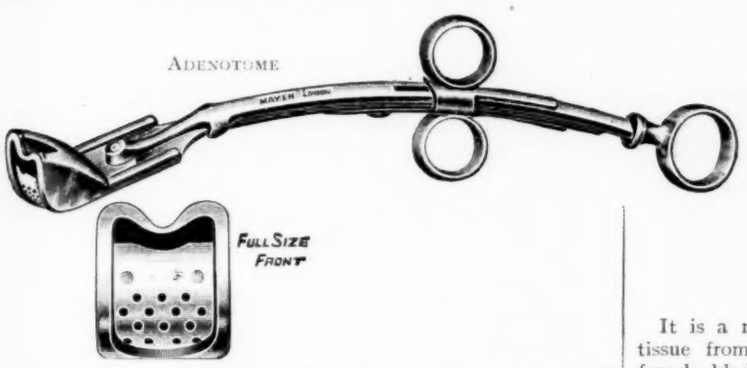
[11] *La Mécanique Pulmonaire.* Par F. Parodi. Paris: Masson et Cie. 1933. (Pp. 224; 53 figures. 36 fr.)

Preparations and Appliances

MODIFIED LA FORCE ADENOTOME

Mr. ARTHUR MILLER, F.R.C.S.Ed. (London, W.1), writes: The La Force adenotome is considered by many otologists as a definite advance in adenoidectomy. This instrument engages the adenoid tissue from below upwards without interfering with the mucous membrane of the nasopharynx; the blade is kept away from the mucosa by the difference in the level of the blade and the sides of the box. The adenotome does not leave any bleeding tags behind and fragments cannot find their way into the larynx. It has, however, one drawback in common with adenoid curettes—namely, that a part of the adenoid tissue may be left in the roof of the nasopharynx; this is largely due to the instrument impinging against the posterior edge of the septum, which prevents the blade from reaching the uppermost portion of the adenoids. To rectify this defect I have had a modification of the adenotome made. As the illustration indicates, there is a recess in the box and blade in this modified adenotome which permits the instrument, when introduced, to lie snugly against the posterior edge of the septum; when closed the blade just protrudes through the recess of the box.

ADENOTOME



I have used this instrument for some considerable time and claim the following advantages for it: (1) The recess permits the surgeon to be certain that the adenotome, when lying against the septum, is also strictly in the middle line of the nasopharynx, thus avoiding the risk of injuring the Eustachian cushions. (2) The uppermost portion of the adenoid tissue is not left behind, as the recess allows the blade to sever the "root" of the adenoids.

The instrument was made for me by Messrs. Mayer and Phelps of New Cavendish Street, W.1.

CERVICAL BIOPSY PUNCH FORCEPS

Dr. ROLAND H. NATTRASS (resident surgical officer, St. Mary's Hospitals, Manchester), writes: The instrument shown in the accompanying illustration is a cervical biopsy punch forceps, which Messrs. Mayer and Co., London, have made for me.

BIOPSY PUNCH FORCEPS

It is a most useful instrument for removal for biopsy of tissue from cervix of uterus. By means of the male and female blades a piece of cervix large enough for microscopy is completely excised, with clean-cut edge and very little haemorrhage.

A DEVICE FOR THE DEAF

Dr. J. MILLER VINE (Grimsby) writes: To overcome the isolation of a deaf person when alone in a dwelling a device has recently been produced which connects the bell system with the electric light and causes the one to operate the other. This is a small metal box 2½ by 3 by 6 inches, which is attached by flex in ten minutes to both systems, and which, when switched into action, causes, in the daytime, any or all the lights to flash on when any bell push is pressed. By night, when they are on, it makes them flicker in a most noticeable fashion. The apparatus can be used with either alternating current or direct current, and incorporates a small transformer activating the bell system from the general electric system, thus eliminating the still common though old-fashioned wet cells. There is no alteration to the existing lights or bells, and the whole thing can be cut out by another switch. After several months' trial it appears foolproof, and there has been no breakdown. The "gadget," named "sordoviso," is not on the market, but those interested should get into touch with the inventor—A. L. Cianchi, 72, Greencroft Gardens, London, N.W.6—who has had a small number made, and may be able to supply them.

British Medical Journal

SATURDAY, JULY 21st, 1934

CANCER RESEARCH

It is difficult for the onlooker to be patient about cancer research. The disease cancer is so much feared, and the results of treatment are often so disappointing, that it is natural to turn eagerly to look for new knowledge. How much more do we know now than a decade ago? Are the chances for a patient better than they were in the days when we were students? These are the questions that often rise in the doctor's mind, and not infrequently find expression in the correspondence column of medical journals. Perhaps our methods of cancer research are all wrong and we are hunting the thimble in the wrong corner of the room. A salutary corrective for this impatient mood will be found in the eleventh annual report of the British Empire Cancer Campaign.[1] Certainly this does not offer us any news of a cure for cancer or even a simple and universal explanation of its cause, but it furnishes a glimpse of many of our fellow creatures who are giving the best of their brains, and often the best of their lives, to study the cancer problem. After reading of the work in progress, not only in this country, but in all parts of the Empire, no one could say that cancer research was barren. It has not yet produced the rich harvest of our anticipations, but there are many promising shoots springing up, sometimes in unexpected quarters. Not many of these have reached beyond what is encouragingly referred to as the "promising stage," but others are now further advanced and begin to have contact with medical practice.

Of particular interest is the work in progress at the Research Institute of the Cancer Hospital, which has found scope for development along three new lines during the last year. The most interesting of these is the inquiry into the biological effects of the female hormone oestrin. This substance, as is well known, is a product of the ovary, and controls the development of the female characters of other parts of the body. It is closely related to cholesterol and to a less extent to the synthetic cancer-producing compounds isolated by Dr. Kennaway and his assistants. It was natural, therefore, to try the effect of painting solutions of oestrin on to the skin of mice in the same way as is done with carcinogenic hydrocarbons. When this experiment was carried out it resulted in a great enlargement of the prostate with obstruction to the flow of urine and hydronephrosis of the kidney. The changes produced in the prostate gland were very suggestive of the early growth of a tumour, though no claim is made as yet that anything of the nature of a tumour has been produced. Mr. Burrows has begun an inquiry into the possibility that enlargement of the prostate in man might be due to the action of abnormal amounts of oestrin. It has been known for some time that a small amount of oestrin is present in normal male urine, and the experiments now in progress should decide whether there is any abnormal excretion of oestrin in cases of prostatic disease.

It has often been pointed out that chemicals such as tar, which in the past were the only agents available for the experimental production of cancer, seemed far removed from any agent likely to be acting in human disease. The artificial cancer-producing compounds recently isolated, however, have a somewhat similar molecular structure to substances normally present in the body, and the question is raised whether it may be possible for natural compounds to be converted into cancer-producing compounds by some perversion of a normal chemical process. The natural compounds in question are the sterols, the bile acids, and (as mentioned above) the ovarian hormone: the essential molecular structure of these may now be regarded as established, though details remain to be filled in. All these substances contain a peculiar type of tetracyclic ring system which has not until recently been obtained synthetically. The simplest compound containing this type of ring system has now been synthesized by Cook and Hewitt, and it is hoped that before long it will be possible to produce some of the more complex substances resembling the actual compounds which are present in the body. A third line of development which seems to hold out a very promising prospect is the study of the intermediate products of the transformation of cholesterol into oestrin, and the search for enzymes present in the body which might be able to induce such changes. Here is another example of an inquiry into phenomena which might actually occur in the body. As the report points out, the discovery of the surprising biological effects of oestrin comes most opportunely now that the constitution of this compound is understood.

One has only to turn over the pages of the British Empire Cancer Campaign report to see how many different aspects of the cancer problem are being investigated by workers assisted by the funds of the Campaign. A branch of cancer research work of special interest to practising doctors is that which Dr. Lumsden has been carrying out at the London Hospital. In last year's report it was stated that a number of inoperable cases of human cancer had been treated by inoculation of concentrated antiserum. The results actually obtained by this form of treatment were that in every case except one the tumours lessened in size after inoculation of the concentrated antiserum, but this improvement varied in degree and in duration. Complete disappearance of the malignant growth did not follow in any case. Usually after a month or two the tumour resumed its progress to the inevitable fatal termination. In all cases, however, there was temporary diminution of

[1] British Empire Cancer Campaign, 12, Grosvenor Crescent, S.W.1.

pain, due to lessened pressure upon surrounding nerves. In view of these results it was decided that before treating further cases an intensive attempt should be made to refine and concentrate the antiserum still more effectively. If such improvements can be achieved, and can be shown to be effective in lower animals, a further series of human cases will be treated, but not till then.

During the past year the Garton prize of £500 has been awarded to Dr. H. A. Colwell for his essay on the method of action of radiations on normal and malignant cells, and a précis of Dr. Colwell's essay is published in the report. On the recommendation of the judges an additional prize of £100 was awarded to Dr. F. G. Spear and his associates of the Strangeways Research Laboratory, Cambridge, and a précis of this essay also is included in the report. In his introduction to the report Lord Reading, chairman of the Grand Council of the Campaign, remarks that it has been pointed out by a very great soldier that every battle is divided into three parts—namely, the period of preparation when openings are being sought for and positions secured, the period of struggle when each side tries to break down the other's resistance, and the final period in which the morale of the vanquished breaks down. Lord Reading considers that in the battle against cancer to-day we have entered the second of these stages. It is certainly the case that the resources and support of the British Empire Cancer Campaign have permitted a degree of preparation for the attack which otherwise would not have been possible.

PELLAGRA IN ENGLAND

Some of us look on pellagra as a disease of the Far East, and will be surprised to see that Stannus and Gibson[1] have collected 131 cases of this disease which have been reported in this country. It is of interest that 111 were females and twenty were males, and about fifteen of the cases were recorded in children ranging from infancy upwards. The vast majority came under observation in asylums, because of the mental symptoms present. In 1913[2] Box reported the cases of two children who were brothers. One of these cases was immediately fatal, and a thorough investigation of the pathological material was made by Sir Frederick Mott[3] and reported in the same number of this journal. The microphotographs of the histopathology of pellagra, and the coloured plate of Dr. Box's case, would repay inspection by anyone interested in this subject.

The history of pellagra is interesting as throwing light on the aetiology. In 1763 Casal, the Spaniard, published a treatise on the disease, and attributed it to faulty diet, and a few years later the name pellagra was given to it by the Italians. At that time it was prevalent in Italy. Its spread throughout Europe can be said to coincide with the introduction of maize into Europe from America, where pellagra has been for many years, and still is, a menace. There seems no doubt, however, that pellagra can occur on diets other than maize, such as rice and millet, and some patients reported upon in the British Isles had never eaten maize. Nevertheless, to quote the Medical Research Council's monograph on vitamins,[4] p. 177, "It should not be forgotten that pellagra is almost exclusively a maize-eater's disease, and that its occasional appearance amongst a population consuming other cereals attracts attention by its very rarity." It was held, and still is by many workers, that pellagra is due to the consumption of proteins of too low a biological value. Without doubt milk and meat are among the most potent foods in the prevention of the disease. Brewers' yeast gives complete protection, and, as yeast contains very little protein nitrogen, it seemed probable that some other factor was at work. This factor, called PP (pellagra-preventive) was found by Goldberger and Wheeler[5] to be present in tomato juice, wheat germ, and canned salmon, and to this PP factor the name vitamin B_2 has been given. The therapeutic value of yeast is now beyond any doubt. Next in potency come milk and meat. It is still maintained by some that there is a toxin present in deteriorated maize which is the cause of pellagra, but this theory has still to be justified. To quote once more from the Medical Research Council's report: "It is very interesting to recall that in the last century the French physicians concerned with pellagra directed their efforts mainly to the elimination of maize from the diet of the people. Their campaign was ultimately successful, and the use of maize in France was discontinued. The simultaneous disappearance of pellagra naturally appeared to be a complete justification of the policy."

Mott found in his cases a widespread sclerosis of the cord and brain stem. From his experience he put this down to a chronic toxaemia rather than an inflammatory process. There was chromatolysis of the posterior spinal ganglion cells, as well as the anterior horn cells. The peripheral nerves showed degenerative changes. Since the lesions of the nervous system are so widespread it is not surprising that the clinical picture should vary so enormously. There are three sets of symptoms for which the clinician must look out if he wishes to make an early and accurate diagnosis. First, the skin manifestations which appear in the early spring, and are present on the exposed portions of the body—namely, the face (particularly the forehead), hands, and, in children especially, the knees and dorsum of the feet. These parts of the body appear to be sunburnt, but on closer inspection they are rough, and have a bran-like peeling appearance, or the skin is shiny and glazed. As the summer comes on, the

[1] Stannus, H. S., and Gibson, C. R.: *Quart. Journ. of Med.*, New Series, vol. iii, No. 10, April, 1934 (vol. xxvii of the continuous series).
[2] Box, C. R.: *British Medical Journal*, 1913, ii, 2.
[3] Mott, F. W.: Ibid., 1913, ii, 2.
[4] Medical Research Council: *Vitamins: A Survey of Present Knowledge*, H.M. Stationery Office, 1932.
[5] Goldberger and Wheeler: Public Health Reports, Washington, xlii, 1299.

condition is intensified, and with it other symptoms appear. The second group associated with this sunburnt appearance are the gastro-intestinal symptoms—a chronic diarrhoea, which fails to respond to simple treatment, causing wasting, and very often a sore mouth and tongue are present in addition. The nervous and mental symptoms complete the picture. Usually the former precede the latter by some months, or even years. There may be difficulty in walking ; tremulous movements of the hands, amounting almost to ataxia ; and much exaggerated knee-jerks, even spasticity of the legs. Then the mental symptoms may show themselves by simple confusion, the patient being rambling or incoherent, or melancholic, with a tendency to suicide, or unduly elated. Finally occur prostration, cachexia, and death.

The prognosis, up to the present, has been extremely bad in this country. In fact, Stannus and Gibson appear to have the first case in this country from which there has been recovery. This was a girl aged 10 years, and her history is known from the age of a few months. Her diet appeared to have been a normal one. The symptoms occurred first when she was perhaps 2 or 3 years old, and the rash was present each summer from that time, gradually becoming more and more marked. Nervous lesions were widespread and mental symptoms definitely present. The patient ran considerable fever at times, and both skin and gastro-intestinal symptoms were typical of pellagra. After continuous treatment with yeast, from the age of 8 years, for a period of two years, a remarkable improvement occurred. She is now back at school, and although she still shows nervous symptoms the skin and intestinal lesions have completely cleared up, and she seems mentally normal. This case must be contrasted with the two reported by Hutchison and Paterson,[6] the first of which was that of a girl aged 6 years 10 months, admitted to hospital for loss of walking power and shaking of the limbs, and who had been fed on cornflour as an infant. For nearly three years she had had the typical rash on the face, hands, and knees. The second case was that of a girl of 9 years 10 months, who was admitted for mental deterioration and inability to walk, and who had lived all her life in a suburb of London, like the other child. Examination of the blood, cerebro-spinal fluid, and urine showed no abnormalities cytologically or biochemically. The neurological lesions and mental deterioration in these cases were aggravated by the appearance of sunshine and summer weather. Both children died within a few months of their cases being reported.

Doubtless those in charge of mental institutions throughout the country are much on the watch for such cases. Certainly a paper such as Stannus and Gibson's is of extreme value in bringing the symptoms and treatment of this disease afresh before the profession, and it would occasion no surprise if several further cases were recognized as a result of their paper.

[6] Hutchison, Robert, and Paterson, Donald: *British Medical Journal*, October 13th, 1923.

NUTRITIONAL ANAEMIA

Few physicians to-day would agree with a statement made in the leading textbook of haematology in 1923 to the effect that " it is obvious that malnutrition must be exceptionally severe and of unusual duration before there is any possibility of anaemia developing."[1] It is now known that 50 per cent. of the adult women and infants in the poorest classes of our cities are anaemic, and studies of various communities have shown how accurately the adequacy of the diet is reflected by the haemoglobin level of the population.[2 3] Nutritional anaemia also affects man indirectly, on account of the heavy losses sustained through the death of farm animals from this cause, and Professor Stanley Davidson and Dr. Leitch[4] have been wise to include in one review the chemistry of blood formation and the nutritional anaemias of animals and man. There is still much to be learnt concerning the value of different constituents of the diet in blood formation. Dr. Leitch points out that the essential building-stones of the red cells are those of the organic matrix or stroma, the pigment complex of haemoglobin, iron, and the constituent amino-acids of globin. There does not appear to be any evidence that the materials necessary for the formation of the stroma or of globin are ever lacking, and the injections of amino-acids such as tryptophan and histidine, which have been advised by French haematologists[5] in cases of intractable anaemia, have found scant support in theory or practice. Little is known of the source of the pigment complex of haemoglobin and similar tissue compounds, but there is evidence to indicate that it is derived from similar complexes in the food. Abnormal metabolism, or excessive loss of porphyrin from the body, such as is found in the rare metabolic disorder porphyrinuria, may interfere with haemoglobin synthesis and lead to severe anaemia. Green vegetables are a valuable source of these pigment complexes. They are also a good source of iron, of which spinach, watercress, and parsley contain especially large amounts. It is of interest to learn of the high iron content of syrup (or molasses) and cocoa, which are recommended as a source of this mineral in cheap human dietaries. But it is still uncertain what proportion of the iron of the various foods is available for blood formation. Although egg yolk contains a relatively large amount of inorganic iron, its haemoglobin-forming power in experimental animals has been found to be small. This is a surprising result in view of the high reputation which egg yolk enjoys as a haemoglobin-forming food in man, and there is need for further investigation of the availability of the iron of different foods by actual observations on man. The role of diet in anaemia is essentially prophylactic, for when frank anaemia develops it is scarcely practicable to repair it by diet alone. Professor Davidson assesses the curative dose of iron given as a ferrous salt at 180 milligrams of metallic iron a day, and Fontes and Thivolle[5] point out that " to give

[1] Naegeli, O.: *Blutkrankheiten und Blutdiagnostik*, fourth edition, 1923, p. 262.
[2] Orr, J. B., and Gilks, J. L.: Medical Research Council, Special Report Series, No. 155, 1931.
[3] Spence, J. C., and Charles, J. A.: *Health and Nutrition of Children in Newcastle-upon-Tyne.*
[4] Davidson, L. S. P., and Leitch, I.: *Nutrition Abstracts and Reviews*, 1934, iii, 901.
[5] Fontes, G., and Thivolle, L.: *Le Sang*, 1933, vii, 210, 342, and 455.

50 milligrams of iron it would be necessary to condemn the patient to eat every day, for weeks or months, about 3 kilograms of fresh spinach, a treatment which would rapidly end in a complete digestive breakdown." In addition to the raw materials of which the red cells are composed, certain hormones, or catalysts, are necessary if blood formation is to proceed in an orderly way. The active principle of liver extract, and copper, are the most important of these. The chemical composition of the liver principle and the element in the diet from which it is derived are still unknown, but any diet which contains a normal amount of first-class protein will supply sufficient material for its elaboration. The chief differences between the distribution of iron and copper in the food are that, as regards copper, poultry is superior to beef, and that root vegetables have about the same value as leaves and legumes. Of outstandingly high copper content are liver, oysters, chocolate, cocoa, and molasses.

WORLD PREVALENCE OF DIPHTHERIA AND SCARLET FEVER

The March–April issue of the Epidemiological Report of the Health Section of the League of Nations gives an instructive account, illustrated by numerous maps, charts, and tables, of the recent trend of diphtheria and scarlet fever prevalence throughout the world. In most European countries, and non-European countries such as Africa, America, Asia, and Australia, the incidence of diphtheria was rising from 1926 to 1930. It is impossible, however, to say whether this represents a significant trend in the curve of diphtheria or is merely a cyclical variation such as might occur in the usual course of the disease and changes in the proportion of susceptible individuals in the population. The diphtheria mortality, on the other hand, during the period 1923–33 shows a notable decline as compared with the last decennia of the nineteenth century and the beginning of the twentieth. Except in Central and Eastern Europe only a fraction of this decline is attributable to the fall in the birth rate and in the resultant proportion of children in the population. In most countries of Western Europe, the United States, Canada, Australia, and New Zealand the diphtheria case fatality rate appears to have reached a fairly low and steady level, whereas in Central and Eastern Europe it seems to be still fairly high and relatively unstable. The campaign that has been carried on in favour of active immunization since 1923 has not yet affected a large enough proportion of the children or total population of the various countries for the results to be shown in the curves of mortality or morbidity. As regards scarlet fever there was an increase in its incidence in 1932 and 1933 in Great Britain, France, Belgium, Holland, Germany, the Saar Territory, Denmark, Switzerland, Czechoslovakia, Hungary, and Japan, but this rise remained within the limits of the more or less regular fluctuations shown by these countries, and did not apparently change the general tendency of the curve over a period of fifteen or twenty years. On the other hand, a decrease took place in Norway, Rumania, Yugoslavia, and Soviet Russia, and the morbidity rate remained more or less stationary in Finland, Lithuania, Austria, Poland, Greece, Turkey, Australia, and the United States. The general decline during the last ten years, especially in the countries of Northern, Western, and Central Europe, is in the main attributable to a progressive drop in the case fatality and only in an insignificant degree to improvement in the notification of cases. On the other hand, the case fatality remains high in the countries of Eastern Europe, where the mortality is still high and unstable; in other words, where the disease is still prevalent in the epidemic rather than in the endemo-sporadic form.

FRACTURES OF THE NECK OF THE FEMUR

Whitman's method for the treatment of fractures of the neck of the femur has held the field for a number of years; when introduced, it marked a great advance on everything that had gone before. Nevertheless, expressions of dissatisfaction have been voiced more recently, as it has become evident that even this method did not yield more than 50 or 60 per cent. of successes. Another cause for complaint was the danger to old people of long confinement in plaster-of-Paris. Open operation and fixation of the fracture by an autogenous bone graft (Albee, Noordenbos, and others) or by means of a steel pin (Smith-Petersen) is now being practised by a number of surgeons who claim far more frequent successes than were ever obtained by Whitman's method. At this time, therefore, which may well be a turning-point in our attitude towards the treatment of these difficult fractures, a statistical study based on the results of treatment in 250 cases, most of them dealt with by Whitman's method, is of particular value.[1] MacAusland, MacAusland, and Lee confirm the traditional British teaching that this type of injury occurs most commonly in patients past middle life; they find this as true of trochanteric as of cervical fractures. Noordenbos's emphatic statement that such fractures are equally common in young people probably holds good only for Amsterdam, where about half the population live on bicycles, falls from which are by no means unusual. Dealing first with fresh fractures of the femoral neck the authors affirm that Whitman's technique of reduction of the fracture by abduction and internal rotation of the lower limb under anaesthesia, followed by prolonged fixation in plaster in this position, is still the most reliable general method of treatment. In their hands about 60 per cent. of patients so treated obtained a stable painless joint, with an almost normal range of movement; 20 per cent. were able to walk with or without the aid of a stick, though complaining of pain or limp after much exercise; and in the remaining 20 per cent. the results were poor. Almost all the failures occurred in patients over the age of 60. Unlike other simple fractures, fractures of the femoral neck carry a very definite mortality: 7 per cent. of the patients dealt with at the MacAusland clinic died of pneumonia within a few weeks of the injury. When one considers the advanced age and poor physical state of the majority of patients coming to hospital with this condition it must be admitted that these results are impressive. Furthermore, the difficulties of open operation are formidable to all but experienced surgeons: Whitman's method, though not foolproof, is simple by comparison, and this bears out the contention that the latter is the best therapeutic measure for the average case in the hands of the average

[1] *Surg., Gynecol. and Obstet.*, 1934, lviii, 679.

surgeon. Indeed, Whitman's technique may well hold its own against open operation as practised by the specialist until equally extensive statistics have been produced to prove the superiority of the major procedure. If non-union is present, even in spite of efficient treatment by Whitman's method, open operation offers the only prospect of obtaining bony union. At the MacAusland clinic cases of non-union have been dealt with by removal of the great trochanter, followed by insertion of the freshened femoral neck into the head and replacement of the trochanter as low down the shaft as possible. In other cases, in which the head was so atrophic as to be functionally useless, Whitman's reconstruction operation was performed. The authors express themselves as satisfied with the results.

SEPARATION OF RABIES VIRUS FROM BRAIN TISSUE

The electric charge carried by bacteria and filterable viruses has been studied by many workers. Its importance in the agglutination reaction is well known, but attempts to make use of it for other purposes, such as the distinction of virulent from non-virulent bacilli of the same species, have not so far proved very successful. It is probable, therefore, that the results described by Dr. G. Sankaran, Major K. R. K. Iyengar, and Mr. W. A. Beer[1] on the separation of fixed rabies virus from the infected rabbit brain by electrophoresis will arouse considerable interest. Briefly, the experiments consisted in passing a 4-milliampere current through a 5 per cent. suspension of infected rabbit brain in sheep serum, and subsequent testing by animal inoculation of the material collected at the positive and negative poles. The current was transmitted through special electrophoresis cells filled with phosphate buffer solution at *p*H 7.38. Within thirty minutes of the passage of the current a faint turbidity became noticeable in the side-arm of the cell attached to the positive pole. The level of the turbid fluid continued to rise, and within two and a half to four and a half hours sufficient material had collected to be used for inoculation purposes. The buffer solution in the side-arm of the cell attached to the negative pole remained clear. Six experiments were performed in all, and in each experiment 0.2 c.cm. of the material collected at the positive and negative electrodes was inoculated separately into two rabbits. The results were very striking. Of the twelve animals injected subdurally with the "negative" material, none developed rabies within a month: of the twelve inoculated with the "positive" material all developed typical rabies within seven to nine days—the usual incubation period of the strain of fixed virus used. The conclusion was therefore drawn that under the influence of the current, electro-negatively charged particles had migrated into the positive cell, and that these particles actually consisted of the rabies virus. Further experiments to confirm these initial findings were carried out by Sir Robert McCarrison, Dr. Sankaran, and Mr. Beer.[2] It was first ascertained that neither normal rabbit brain nor normal sheep serum yielded, on electrophoresis, substances capable of causing rabies-like symptoms in rabbits. It was next shown that street virus from rabid dogs, when subjected to electrophoresis, migrated to the positive pole, and that material from this pole gave rise on subdural injection into guinea-pigs to rabies in from eleven to sixteen days. The nature of the disease was proved by the demonstration of Negri bodies in the hippocampus. The original experiments with fixed virus were then repeated. Of twenty-eight rabbits and five sheep inoculated with material from the positive pole in ten different experiments, all but two rabbits and one sheep developed rabies, whereas of a similar group of animals inoculated with material from the negative pole none developed rabies. By attaching an L3 filter candle to the lower end of the side-arm of the positive electrophoresis cell, it was found possible to separate the rabies virus elements from the accompanying brain tissue. After passage of the current for twenty-four hours the material inside the filter candle proved infective. Since the material obtained by electrophoresis remains virulent for at least eight days at room temperature, the authors conclude that the way is now open for the preparation of a more highly concentrated antirabic vaccine than has hitherto proved possible.

[1] *Indian Journ. Med. Research*, 1934, xxi, 909.
[2] Ibid., 1934, xxi, 917.

HARVEY AND LITERATURE

In a recent communication before the History Section of the Royal Society of Medicine (June, 1934, xxvii, 1095) on the subject of "William Harvey's Knowledge of Literature—Classical, Mediaeval, Renaissance, and Contemporary," Professor D. F. Fraser-Harris displays the fruit of a research which should be of interest to students of medical history. In his published writings and in his correspondence Harvey shows the most intimate knowledge of the works of many authors, mentioning twenty-five Greek and fourteen Latin writers and thirty-two names in the Renaissance and contemporary period. In quoting Aristotle so frequently (269 times), Harvey was but following his own counsel contained in a conversation with Aubrey: "Go to the fountain head and read Aristotle, Cicero, and Avicenna." While the majority of references are to subjects of biological importance, he was fond of quoting from Virgil. The absence from this collection of Caesalpinus's name is significant, and Professor Fraser-Harris infers that Harvey found nothing of value concerning the problem of the circulation in the writings of a man who in some quarters even to-day is regarded as its discoverer.

EXCRETION BY THE MILK

There is a vast amount of folk-lore on the excretion of substances into milk, but there is a singular lack of definite scientific evidence as to the substances which actually pass from the maternal circulation into human milk. Recently, Dr. G. Drefus-Sée[1] has made an interesting summary of present knowledge on this question. As he points out, much more is known about the passage of food substances and drugs into the milk of the cow; but it is unsafe to assume that facts established for one species will be true in the case of another. For example, an increase in the salt content of the diet does not raise the chloride content of the cow's milk, but apparently such an effect can be produced in women. A large number of inorganic substances such as bromides, iodides, arsenic, mercury,

[1] *Rev. de Méd.*, 1934, li, 198.

and lead are excreted in the maternal milk, as well as, in traces, a number of organic drugs—for example, anaesthetics and hypnotics, morphine, and many alkaloids such as quinine, caffeine, and strychnine. Other drugs, such as the volatile oils, can change the taste of the milk, whilst rhubarb causes a yellow discoloration. It is, however, doubtful whether the active purgative principles of any of the anthracene group are excreted. It is of interest to note that only very small quantities of alcohol and nicotine find their way into the milk. Dr. Drefus-Sée considers that it is very doubtful whether any drug appears in the milk in a quantity sufficient to produce a definite therapeutic action on the child, and that in all cases drugs and toxic substances are excreted in very small quantities except when there is a massive maternal intoxication.

BIOCHEMISTRY AND NUTRITION

The council of the Royal Society of Arts attended at Clarence House on July 11th, when the president, H.R.H. the Duke of Connaught, handed the Society's Albert Medal for 1934 to Sir Frederick Gowland Hopkins, P.R.S., "for his researches in biochemistry and the constituents of foods." In making the presentation the Duke of Connaught said: "Your work has largely lain in the domain of pure biochemistry. Your discoveries have not only enriched this science, but have done much to make it a distinctive subject for study, attracting a large and enthusiastic body of research workers. Actually the discovery that foodstuffs contained certain factors now called vitamins, and that life could not be maintained on a synthetic diet alone, gave a new impetus to work on nutrition and to the study of deficiency diseases, in which work you have continued to take an active part. In consequence the world has acquired a clear conception of the vitamins, of the part they play in health and disease, and their distribution in various foods. As a further result, nutrition, the feeding of a nation, is becoming a more exact science, to the benefit of the health of everyone. Of no less consequence to the general advance of science has been your personal willingness at no small sacrifice of comfort and leisure to give help at all times and in every way to scientific workers and associations with scientific aims. I have the greatest pleasure in handing you this medal, which was founded as a memorial to my dear father in 1862."

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

On March 4th, 1935, Sir Holburt Waring, President of the Royal College of Surgeons of England, will open the new building of the Royal Australasian College of Surgeons, in Collins Street, Melbourne.

ROYAL COLLEGE OF SURGEONS CONVERSAZIONE

EXHIBITIONS AND DEMONSTRATIONS

Those who attended the conversazione of the Royal College of Surgeons of England, on July 11th, were entertained by a series of interesting demonstrations and exhibitions of the latest work in surgery and in cancer research. Developments of new technical methods were shown by research workers at the Buckston Browne Surgical Research Farm and at the Royal College of Surgeons Laboratories. These included a new treatment for spasm of the cardiac sphincter, and a method for resection and anastomosis of the lower third of the oesophagus. The results of treatment of facial paralysis in man by autogenous grafts and the experiments which led to the development of this treatment were illustrated by cinematograph films. A most interesting exhibit was an experimental study of surgical shock, which demonstrated that it is no longer possible to hold to the theory that shock depends on the distribution by the blood stream of histamine or other products of tissue trauma. From these experiments a possible line of treatment was suggested. The Surgical Unit of St. Bartholomew's Hospital demonstrated some of the results of arteriography in diseases of the peripheral vessels. Thorotrast injections were used and radiograms taken at definite times after the injection. The results of thoracic ganglionectomy for Raynaud's disease and of radium treatment for carcinoma of the tongue were very strikingly shown by water-colour drawings. Studies of diaphragmatic herniae and hyperparathyroidism in relation to bone conditions were also demonstrated.

RECENT WORK ON CANCER

The series of exhibits bearing on the cancer problem was most complete. Tissue culture work was demonstrated by the Strangeways Research Laboratory and the Stroud Laboratories of the Imperial Cancer Research Fund. The former institution showed the effects of gamma rays in known doses on isolated cells *in vitro* and on the whole embryo. The effects on the whole embryo were of great interest, as it was shown that gamma rays have two effects—a direct one on the cells, and an indirect one on the cells due to damage of the circulatory system. The growth and spread of "filterable" fowl tumours were demonstrated by the Stroud Laboratories, which also exhibited an interesting series of specimens and photographs of individual cells after various experimental procedures. A method of differentiating cells in tissue cultures by means of vital staining was used also to determine the functional activity of the cells.

The exhibit of the Imperial Cancer Research Fund Laboratories included a demonstration of the technique of micro-incineration, which eliminates the organic matter in the section and enables the mineral skeleton to be examined and the relative increase or decrease of the inorganic salts to be determined. Experimental work on cancer-accelerating substances found in the liver has shown that these substances are not identical with the haemopoietic factor. It was pointed out that it is not yet known whether or not the cancer-accelerating substance is present in the many preparations of liver on the market, or if the administration of fresh liver in pernicious anaemia cases is likely to precipitate the onset of cancer in susceptible individuals. The division of spontaneous tumours into radio-resistant and radio-sensitive groups was shown. It appeared that in the radio-sensitive tumours there is no direct lethal effect on the malignant cells, but that the effect produced by radiation is due to

an invasion of macrophages, which are later transformed into fibroblasts. In this way a massive stroma is formed and the tumour split into narrow strands of cells which are absorbed later. There is no macrophage invasion in the radio-resistant tumours and consequently no stroma formation. The importance of these observations, in view of the extensive use of radium, cannot be gainsaid, but it will be necessary to reconcile these results with the known direct and indirect effects of radiation on growing cells such as was demonstrated by the Strangeways Research Laboratory.

The Research Institute of the Cancer Hospital and the Research Laboratories of the Middlesex Hospital combined to demonstrate the effects of cancer-producing compounds closely related to oestrin. It was shown that these substances are capable of producing a full oestrous response in addition to producing cancer when applied to the skin. Oestrin in benzene solution painted on the interscapular region was found to produce mammary cancer in a castrated male mouse within 175 days from the commencement of the application to the skin. The transmission of tar-induced tumours in the fowl by filtered extracts was demonstrated by the Middlesex Hospital. The interpretation of this result will provide much interesting discussion on the relation of a virus to the tar-induced tumours.

The Physics Department of St. Bartholomew's Hospital contributed an interesting series of experiments illustrating the effects of radiation on chemical activity and on colloids. An ingenious radiation detector was demonstrated. This piece of apparatus was able to detect amounts of radium salts which were too small to be seen or even to affect an electroscope. The application of very high frequency electrical currents to the differential heating of tissues was shown. This machine will make it possible to heat a specific tissue to any temperature, while other tissues surrounding it remain at body temperature. It is possible, with this apparatus, to "boil" an egg in water without heating the water or without any electrical contact being made with either egg or water! Will it be possible, some day, to "cook" a cancer without affecting the normal tissues? Perhaps an answer to this question will not be long delayed. Professor J. C. McLennan of the Radium Beam Therapy Research at the Radium Institute gave a demonstration of the use of the 5-gram unit. Methods of detection and measurement of radiation and the effective screening of large masses of radium were demonstrated.

Other Scientific Exhibits

In addition to the above demonstrations bearing directly on surgical advances and cancer research there were many other scientific exhibits. The National Institute of Medical Research contributed two demonstrations: (1) A demonstration of the actions of acetylcholine. (This substance is released at parasympathetic nerve endings in ganglia and at the endings of voluntary nerve fibres on striped muscle, and has, therefore, an important role in the animal economy.) (2) The recent work on viruses was also demonstrated. "Virus bodies" or "inclusion bodies" were demonstrated from various kinds of tissue. The application of the tissue culture technique to the study of scar formation on the chemical factors involved in the process of repair formed part of the Strangeways Laboratory exhibit.

Experimental work on teratomata and the analysis of the tissues of these tumours was shown in the Buckston Browne Surgical Research Farm exhibit. A study of these tumours demonstrated the fact that certain tissues are always differentiated in close association to each other —for example, nerve tissue always close to cartilage and bone. Connexions of the brain cortex with different parts of the thalamus and the connexions of the retina with specific regions in the lateral geniculate body formed the demonstration of the Anatomy Department, St. Thomas's Hospital.

Two anthropological demonstrations completed the exhibition. The first consisted of the ancient human remains found in caves on Mount Carmel in Palestine by a joint expedition led by Miss Dorothy Garrod. The specimens included the Neanderthaloid skeletal remains now being freed at the Royal College of Surgeons from the rocky matrix in which they were embedded. A very much earlier fragment of a human femur and specimens of the modern type of man from the upper levels of the caves were shown. The second exhibit was a museum case to illustrate the discovery of Piltdown man. A scale model of the site showed the exact situation in which were found the jaw and occipital fragments. The model was finished with actual specimens of the gravel layers. Casts and reconstructions completed a very interesting exhibit. This case is but the first of a series which will illustrate the most historic sites where relics of ancient man have been found.

The guests were received in the museum hall by the President and Lady Waring. Dr. J. A. Murray and Professor J. C. McLennan gave their demonstrations in the lecture theatre. In the inner hall books and manuscripts from the library were on view. This was the first medical scientific evening of the kind that has been held at the College, and the general hope is that it will not be the last.

STUDY OF CHRONIC RHEUMATISM

AN INTERNATIONAL CONGRESS

An international congress devoted to the study of chronic rheumatism was held at Aix-les-Bains in Savoy from June 28th to July 1st, under the presidency of Professor Fernand Bezançon of Paris. Some 350 medical men attended, and official delegates were present from twenty countries.

The subject chosen for discussion was "Rhumatisme Chronique Progressif Généralisé," or, as we know it, rheumatoid arthritis. During the meeting twenty papers and some forty short communications were read. The work was arranged so that the first day was devoted to a general survey of the problem and to the pathology and aetiology of this disease process. On the second day the clinical aspect was discussed, with special reference to symptomatology and to clinical diagnosis. The third day was devoted to therapeutics.

General Survey of Rheumatoid Arthritis

Professor Bezançon and Dr. Mathieu-Pierre Weil of the Saint-Antoine Hospital in Paris defined the limits of this subject, and described in detail that clinical picture which was originally presented by Charcot and which is recognized in this country as "rheumatoid arthritis." Subsequent speakers, including Professor Mouriquand of Lyons and Professor Roche of Geneva, discussed the relation of endocrine factors, infection, constitution, and the autonomic nervous system to the disease. Professor F. Coste (Paris) gave a critical review of the evidence on which the various theories of infection have been based, and assessed the relative value of the work that has been done in connexion in particular with the streptococcus, the gonococcus, and the tubercle bacillus.

As might be expected from the international character of the meeting, terminology was used somewhat loosely, and a great variety of different conditions were referred to under the title of rheumatoid arthritis. The general trend of thought, however, was undoubtedly towards the French

FIG. 1.—The arterial disease in the heart muscle. (× 55.)

FIG. 2.—The arterial disease in the liver. (× 55.)

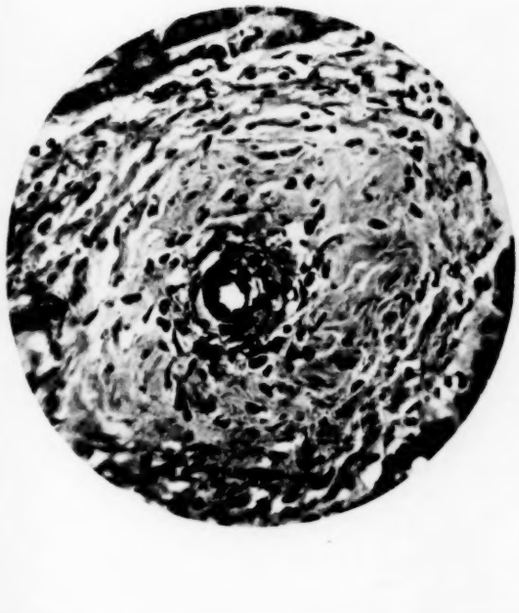


FIG. 3.—The arterial disease in the liver. (× 250.)

FIG. 4.—The arterial disease in the pancreas. (× 55.)

UNIV. OF MICH.

A. VICTOR NEALE AND ALLAN G. W. WHITFIELD: RHEUMATISM AND ITS RELATION TO ARTERIAL DISEASE AND PERIARTERITIS NODOSA

FIG. 5.—Exterior of heart showing nodular thickening of the arteries.

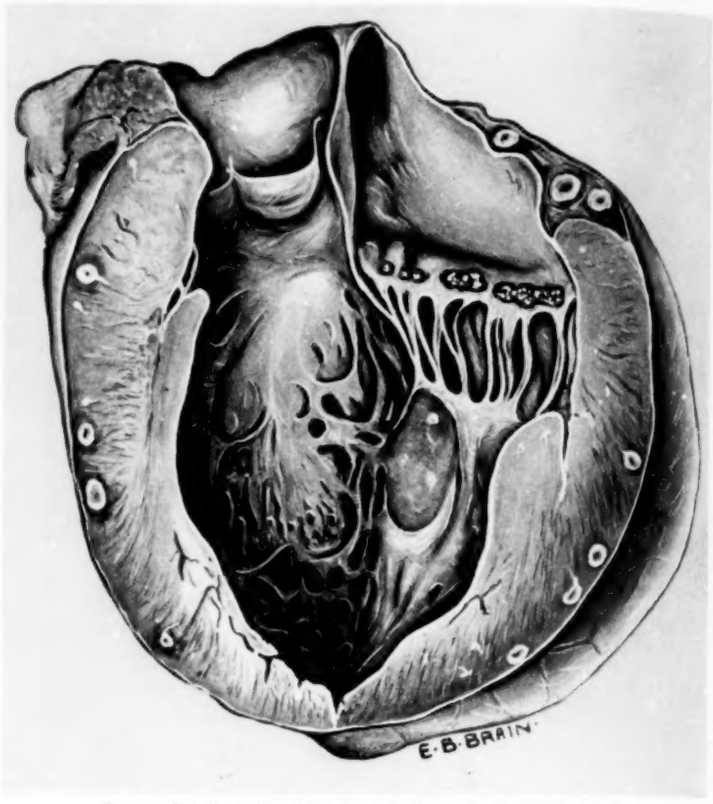


FIG. 6.—Interior of heart showing mitral valvular disease and diffuse disease in the arterial circulation.

DUNCAN C. L. FITZWILLIAMS: INFLAMMATORY DISLOCATION OF THE ATLAS

FIG. 1.—*X*-ray, front view.

FIG. 2.—*X*-ray, side view.

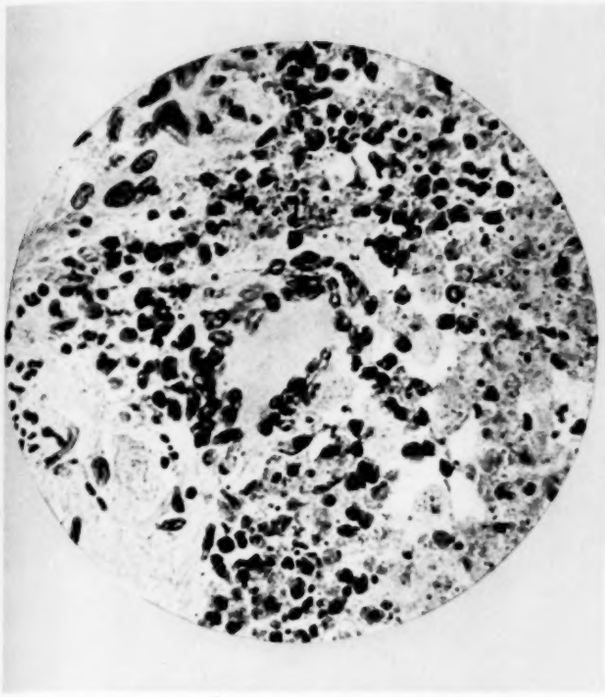


FIG. 1.—Showing gummatous focus in brain with central giant cell, mononuclear cells clustered external to same, and further out on left side cells of spindle-celled type. To right of giant cell, area of focal necrosis with ill-defined cell outline and poorly staining nuclei.

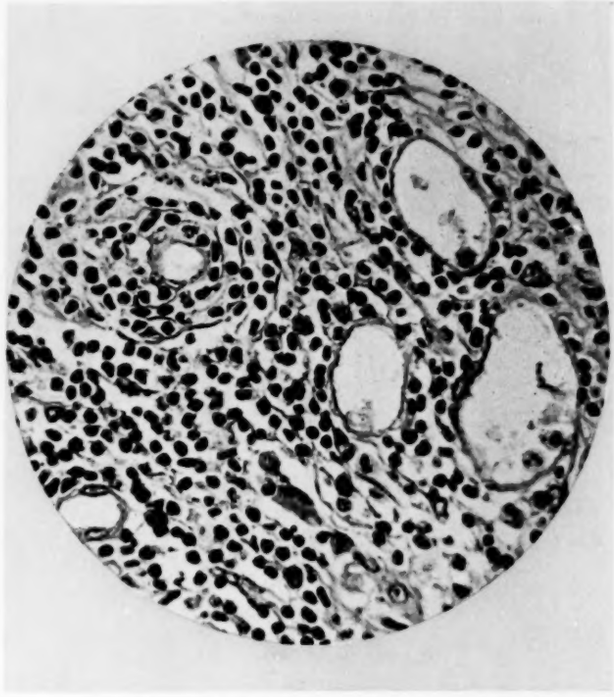


FIG. 2.—Section of vascular area showing round-celled proliferation: dilated vessels with some thickening of lining epithelial wall.

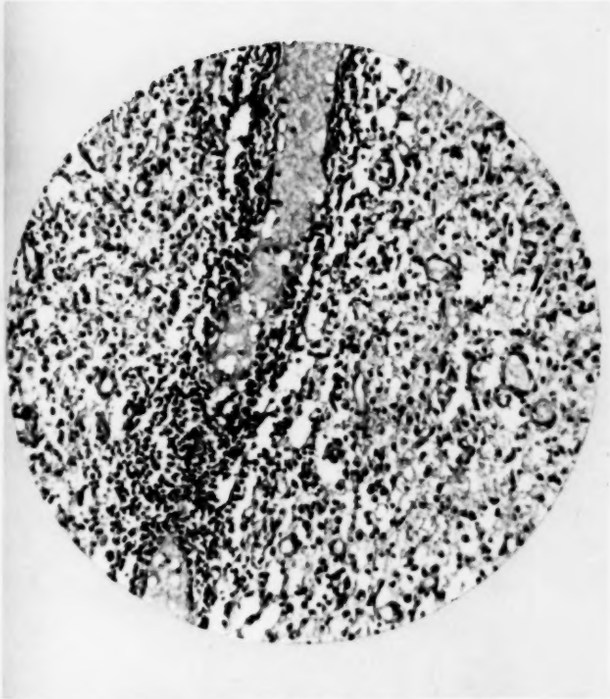


FIG. 3.—Section of brain tissue at periphery of area of degeneration showing a syphilitic periarteritis of a vessel in longitudinal section. Definite inflammatory reaction seen in wall of vessel.

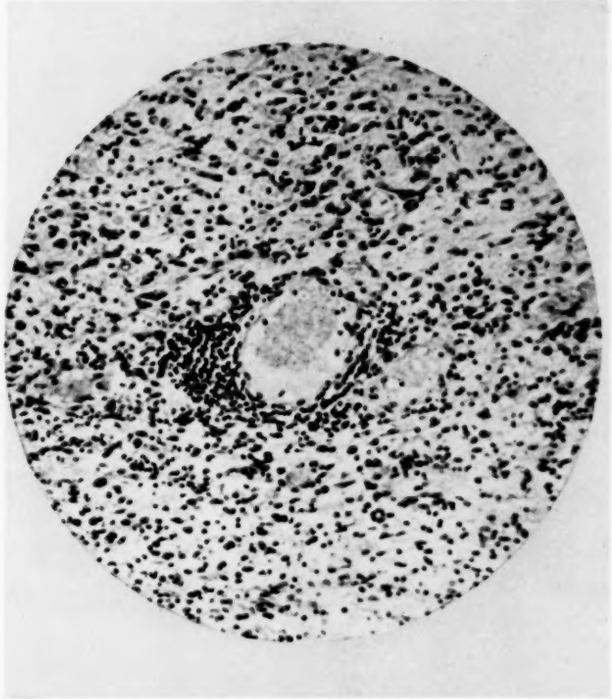


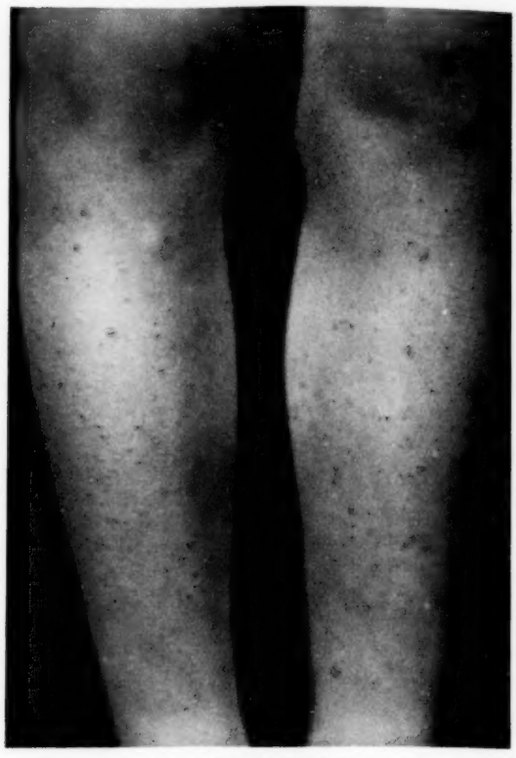
FIG. 4.—Section of brain tissue from a similar area showing a periarteritis of vessel in transverse section. Note increase of round cells and heaping up of same at external aspect of vessel wall.

OF MEDICINE

ARCHER HOSKING: CAESAREAN SECTION.
DELIVERY OF 254-DAY EXTRAUTERINE FOETUS

Extrauterine foetus: 250th day.

G. P. GOODWIN: CUTANEOUS MANIFESTATION
OF VITAMIN A DEFICIENCY



Front view of patient's legs.

C. L. SPACKMAN: LATE RECURRENCE OF CARCINOMA

Lateral and antero-posterior views of skull, showing areas of rarefaction.

concept of "arthritism," to the individual and the way he reacts, on account possibly of a specific constitution or diathesis, to a variety of extraneous factors, such as infection, metabolic disturbance, and so on, to produce the clinical picture of rheumatoid arthritis. This aspect was emphasized frequently in contradistinction to a specific infection or metabolic upset being the specific cause of the clinical pictures presented by this disease.

CLINICAL AND PATHOLOGICAL ASPECTS

The second session opened with a paper by Dr. Francis Bach (London) on the anatomy and the physiology of the skeletal system, and the pathological changes that occur in the early stages of rheumatoid arthritis. The importance of the general decalcification of bone, as one of the earliest signs of this disease, was emphasized by Dr. S. Gilbert Scott (London), who followed with an interesting paper on the radiographic aspect of rheumatoid arthritis. The bone changes that may be present in the various stages of the disease were described, and an illustration was given of the value of the standardized radiograph of the hand as an aid to the early diagnosis of rheumatoid arthritis, and its differential diagnosis from osteoarthritis, gout, and other conditions. Professor Abrami (Paris) gave an able word picture of the different clinical forms in which the disease may manifest itself, and Professor Marañon (Madrid) read a carefully prepared paper on the differential diagnosis of rheumatoid arthritis. Drs. R. J. Weissenbach (Paris) and F. Françon (Aix-les-Bains) discussed the importance of taking, in conjunction with the clinical picture, the laboratory and the radiographic evidence and the response to treatment in making a prognosis in the individual case. A paper on sulphur metabolism in rheumatoid arthritis was communicated by Dr. A. R. Neligan and Mr. H. B. Salt, M.Sc., from the laboratory of the Royal Brine Baths Clinic, Droitwich. The session concluded with a paper by Professor Kahlmeter (Stockholm) on the changes in the blood which may be found in this disease.

DISCUSSION ON TREATMENT

The third session was devoted to a discussion on treatment. Among the papers was one read by Sir William Willcox, who discussed the part that infection, and in particular "focal" infection, plays in the genesis of this disease. He outlined the technique of its treatment by vaccine therapy. Professor Rathery (Paris) described the methods of drug treatment and chemotherapy that have been recognized to be of value. Professor Gunzburg (Brussels) described the indications for, and the methods of, physiotherapy that may be applied. Professor Paul Mathieu, professor of clinical surgery in Paris, and Dr. Loring T. Swaim of Boston described the orthopaedic treatment of rheumatoid arthritis. A provocative paper was read by Professor Leriche (Strasbourg) on the role of surgery in this disease. He described bone and joint pathology, and the role of the parathyroid gland in the regulation of calcium metabolism. He stressed the value of parathyroidectomy in the treatment of this disease, and discussed the indications for arterial sympathectomy and arthroplasty. A film showing aspects of the orthopaedic treatment of rheumatoid arthritis was demonstrated by Dr. Vincent Coates (Bath).

Most of the papers read at the meeting were collected and published beforehand.[1] The secretaries, Dr. Mathieu-Pierre Weil of Paris and Drs. F. Françon and J. Forestier of Aix-les-Bains, had arranged the scientific part of the congress with great care. The subject for discussion had been well defined, and excellent opportunities were given for the consideration of its pathological, aetiological, and clinical aspects. The new thermal baths were open for inspection, and the various methods of physical treatment for which Aix-les-Bains has long been famous were shown to the delegates.

[1] Rapports: Rhumatisme chronique progressif généralisé. Aix-les-Bains, 1934. Imprimeries Réunies de Chambéry, 3, Rue Lamartine, Aix-les-Bains.

BEIT MEMORIAL TRUST FOR MEDICAL RESEARCH

A meeting of the trustees of the Beit Memorial Fellowships for Medical Research was held on July 12th for the election of Fellows and other business. The annual report, which was adopted by the trustees, expressed deep regret at the death, on July 3rd, at the age of 82, of their senior colleague, Sir James Kingston Fowler. For twenty-one years, in his double capacity of trustee and honorary secretary, Sir James had given devoted service to the welfare of the Trust, and when enfeebled health made it necessary for him to relinquish the secretarial duties he still watched closely, as trustee, the progress of the work, which owed so much of its success and even of its existence to his creative powers. When Dean of the Faculty of Medicine in the University of London Sir James had been foremost among those who were planning for certain changes in the teaching of the preclinical subjects, and for this end he had won the practical sympathy of Mr. Alfred Beit. The plan was not realized, but Sir Otto Beit, on the death of his brother, generously decided to give the money that the latter had intended for the plan, together with a great addition to the sum on his own part, for a new purpose—the establishment of Beit Memorial Fellowships. The Trust was created in 1909, and every step of its formation and growth was nursed by Sir James with a wisdom that rested on his knowledge of practical affairs, and yet never lacked the vision that was content to wait for results provided that Fellows of high scientific abilities were chosen. His eager care in fostering the aims of the Trust rivalled that of the founder himself—Sir Otto Beit—during the twenty years in which the latter lived to preside as chairman of the trustees; and to both of them (now dead) all gratitude is due for such personal service.

Fellowships throughout the year 1933–4 were held by twenty-four workers. Among the distinctions gained by past and present Fellows during the year may be especially noted the appointment of Professor E. Mellanby, F.R.S. (1910–12), as secretary of the Medical Research Council. Dr. H. Cohen (1924–5) has been appointed Professor of medicine in the University of Liverpool. Dr. Helen Mackay (1920–2) was elected to the Fellowship of the Royal College of Physicians, London, being the first woman to be thus honoured. Dr. Dorothy Russell (1923–6) gained the Hunter Medal and Triennial Prize of the Royal College of Surgeons, London; and Dr. Janet Vaughan (1931–4) received the Triennial Liddle Prize of the London Hospital. Dr. Maurice Stacey (1933–) earned an unusual distinction as first-year Fellow in being awarded the Meldola Prize of the Institute of Chemistry.

ELECTION OF NEW FELLOWS

The following elections to Fellowships were made by the trustees:

Fourth-year Fellowships (value £500 per annum).—Robert Hill, M.A.Camb. To continue his research on the properties of haemoglobin and cytochrome. (Dunn Institute of Biochemistry and Molteno Institute, University of Cambridge.) Leonard Hubert Stickland, M.A., Ph.D.Camb. To continue his work on the metabolism of the strictly anaerobic bacteria of the genus Clostridium. (Dunn Institute of Biochemistry, University of Cambridge.)

Junior Fellowships (value £400 per annum).—Solly Zuckerman, M.A.Capetown, D.Sc.Lond., M.R.C.S., L.R.C.P. Proposed research: Experimental study in animals of the neurovascular control of reproductive functions. (Department of Human Anatomy, University of Oxford.) Harold Williams Fullerton, M.A., M.B., Ch.B.Aberd. Proposed research: The aetiology and treatment of hypochromic anaemia of women of the poor classes. (Department of Medicine, University of Aberdeen, and the Rowett Research Institute, Aberdeen.) Emanuel Mannie Lourie, M.B., B.S.Lond., D.P.H., D.T.M. and H. Proposed research: Studies on chemotherapy in protozoal disease. (Liverpool School of Tropical Medicine.) Joseph Stanley Mitchell, B.A., M.B., B.Ch.Camb. Proposed research: The effects of radiation on thin protein films.

(Laboratory of Colloid Sciences, University of Cambridge.) David Ezra Green, M.S.New York, Ph.D.Camb. Proposed research: The effect of hormones and vitamins upon the metabolism of individual organs. (Institute of Biochemistry, University of Cambridge.) Gordon Allison Grant, M.Sc.Dalhousie, Ph.D.Toronto. Proposed research: The metabolism of galactose and the physiological synthesis of lactose by the active mammary gland. (Lister Institute of Preventive Medicine, London.) Stuart Lawson Cowan, B.Sc.Lond. Proposed research: To continue study of the chemical exchanges occurring in crustacean nerve, as a result of stimulation and oxygen want; to study the blood flow through the kidney during diuresis. (Pharmacology Laboratories, University of Cambridge.) Maurice Jowett, B.Sc., Ph.D.Liverp. Proposed research: Metabolism of the central nervous system with reference to the effects of narcotic and basic amines in cases of mental disorder. (Biochemical Laboratory, Cardiff City Mental Hospital.)

In considering candidates for election this year the trustees were influenced by a special desire to promote research in relation to mental disease.

All correspondence of Fellows and candidates should be addressed to Professor T. R. Elliott, M.D., F.R.S., honorary secretary, Beit Memorial Fellowships, University College Hospital Medical School, University Street, W.C.1.

Union of South Africa

[FROM OUR CORRESPONDENT IN PRETORIA]

Medical and Nursing Services in the Native Territories

The urgent health needs of the four million Bantus living in the native reserves of the Union are at last to be met by an organized scheme of relief. Six years ago a State commission inquired into the practicability of training Bantus in medicine, with a view to their serving their own people in the territories after qualification. It was then pointed out that there were areas where only one medical man was available to attend to the health needs of some 40,000 people. In such areas native herbalists and witch doctors flourished, and preventable mortality was excessive. That commission recommended that a full course of medical training for natives leading to a registrable qualification be instituted at one of the South African universities. This was considered by the Government of the day to be impracticable, and no action was taken in the matter.

Recommendations of Departmental Committee

Last year an interdepartmental committee was appointed by the Government to advise on methods for meeting the health needs of the Bantus, and during the 1934 Budget debate the Minister of Public Health announced that the Government proposed to carry out the recommendations made by that committee. The committee pointed out that the provision of a sufficient number of fully qualified native practitioners to meet the requirements of all the reserves was impracticable. Even if all financial obstacles could be overcome, the difficulty of providing the necessary training would still be insuperable. The number of suitable Bantu students who would be available for training would of necessity be very small for many years—too small to justify the establishment of a separate Bantu medical school. Parallel classes at the two existing European medical schools would also be unjustifiably expensive, in view of the relatively small number of students who could avail themselves of the course. Individual talented Bantus should not, however, be debarred from all prospect of qualifying as doctors, and the legitimate claims for higher education could not be ignored. Since facilities for their training in the Union could not be provided, although such were provided for their fellow tax-paying European citizens, some State aid in the form of scholarships for proceeding over-seas was recommended. The inducements for European practitioners to settle in the reserves were too slight to attract more than a very few, apart from the State-aided district surgeons and the devoted men working in conjunction with missionary societies. With full facilities provided the number of Bantus who could qualify during the next few decades would also be much too small to meet the medical requirements of these people.

Medical Aids

Because of the urgent necessity of providing some medical relief, however, special training of suitable natives in a shortened course not leading to a medical qualification was recommended. The individual so trained is to be referred to as a "native medical aid." The course will, at all stages, differ from the corresponding stage of the medical curriculum. Apart from the elimination of study unnecessary to the future activities of the medical aid, it was considered important to meet possible opposition from the medical profession because of an "inferior" medical degree or diploma. The training will differ fundamentally from the medical curriculum in that it will not be concerned with principles on which the practitioner subsequently builds. The medical aid will be trained to do a limited number of duties very well. Thus he will be specially trained in first-aid treatment, and in the careful preparation of blood smears for malaria examination, of nasal smears for leprosy examination, and of sputum for tuberculosis examination. In such matters high technical skill will be required of him. He should be capable of dealing with most of the ordinary ailments and injuries, and know when to call to his aid a medical man. He will be in full-time Government employ, though he may be seconded to a local authority or other body concerned with health administration. Private practice will be precluded. Any fees due by patients for services rendered will be collected by the Government or local authority. He will be given a suitable house, considerably superior to the huts in the kraal where he will be stationed, and a dispensary and consulting room will be provided. The Minister stated that the proposals had been generally approved by the Federal Council of the South African Medical Association, and the Government had decided to accept the obligation of the conduct of a native health service. The institution of the scheme would necessarily be progressive, keeping pace with the training of the necessary personnel. It was contemplated that ultimately 200 native medical aids would be employed, at the cost to the State of approximately £70,000 per annum. The initial capital expenditure for residential and dispensary quarters would be about £100,000. Realizing the importance of the proposed health service, not only for the natives but for South Africa as a whole, the Government has readily accepted these commitments.

The Johannesburg Chamber of Mines had previously announced that it was prepared to make an appropriate donation towards some suitable scheme for Bantu welfare in the Union. On learning of the Government's decision it donated £75,000 for the medical training of natives, the disposal of this sum being left to the Government. The latter decided, with the Chamber's concurrence, to pay it to the South African Native College, the council of which is to be empowered to use not more than £5,000 for building purposes, and to invest the remainder as a permanent fund. As a result of the Chamber's generous action, coupled with the Government's decision, it has now become possible to proceed with one of the biggest forward steps in native welfare which have been taken for a very long time

Female Nurse Aids

The need for female nurses in the reserves was also emphasized by the committee, and it was proposed to provide facilities for the training of a large number of nurse aids, with special reference to obstetrics. The committee was satisfied that the best way of providing additional native nurses and nurse aids would be by subsidizing to an increased extent the various mission hospitals that are already doing most praiseworthy work in this connexion. Non-European hospitals under provincial government administration should also be induced to increase the training both of registrable Bantu nurses and of nurse aids.

England and Wales

Port Sanitation at Liverpool

A comprehensive survey of the activities of a port sanitary authority, with an indication of the ways in which these activities are related to the local inhabitants and to the general community, is afforded by the annual report of the medical officer of health to the Port Sanitary Authority of Liverpool for 1933. Dr. W. M. Frazer details the measures adopted under the Port Sanitary Regulations, with special references to the campaign against rats, the improvement of the sanitation of vessels, the inspection of imported foodstuffs, and the medical inspection of aliens, interspersing observations on the way in which these measures have worked out in practice. An additional attraction is a review of the development of the Port of Liverpool by Dr. E. R. Peirce, senior assistant port medical officer, since the first reference to it in the reign of Edward III. From 1901 onwards all vessels arriving from abroad have been examined by trained rat-searchers, and many epizootics of rat plague have thus been brought to light. In the year under review no case of bubonic plague was detected. When any possible harbourage for rats is seen, representations are made to the owners or agents, and such harbourage is eliminated or the certificate is endorsed. The Liverpool docks are of solid construction, and for the most part present a minimum of shelter for rats, apart from such places as engineers' stores and accessory structures. As the result of long-continued action these have now been rendered rat-proof, and are so maintained. Dr. Frazer concludes, therefore, that the risk of the introduction into this country of rat plague has now been very greatly reduced. He adds that since the enforcement of Article 28 of the International Sanitary Convention of Paris (1926) there has been a steady increase in the number of ships examined which show no evidence of rat infestation. The methods adopted at Liverpool have proved so successful that numerous inquiries about the details are received. Dr. Frazer has therefore deemed it useful to reproduce in his present report the lines of procedure which were published in its predecessor. Statistics indicate that, in spite of the most careful precautions, rats are always likely to gain access to a vessel when cargo is being loaded. For "deratization" the fumigation of ships with sulphur dioxide or hydrocyanic acid gas is preferred. On one occasion last year a partly loaded vessel had to be fumigated. So far as could be ascertained no damage was done to the cargo, which included sugar, rice, bags of salt, and barrels of port produce. Dead rats were found in various parts of the vessel. Close attention has been paid to the hygiene of the quarters of crews. The use of tongue-and-groove boards in the forecastles is the cause of a large amount of infestation with bugs, and the Port Sanitary Authority always urges that this form of boarding should be removed, with subsequent free use of the blow-lamp. If boards are to be used in the forecastle three-ply wood should be substituted. A marked improvement in the condition of the crews' quarters has been noted when they are fumigated for each voyage and sprayed with an insecticide, a supply of which is made available also for use during the voyage. Food inspections have shown that much more care is now being taken to exclude unsatisfactory carcasses in most importing countries, but not yet in all. Exception was taken to the label "Fit for human food" which was carried by one consignment of canned dog food. Such examples of the details of the work of the authority enliven a valuable report.

Sheffield Radium Centre: Deep X-Ray Therapy

On July 5th the Duchess of York opened the Sheffield Radium Centre. In greeting Her Royal Highness on behalf of all associated with the Sheffield Royal Infirmary and the Radium Centre, Sir Ronald Matthews referred to the installation of a new deep *x*-ray therapy set. Sir Ronald said: "I think I may say that it has, so far, justified the highest expectations of those who advised us to install it, and I hope that in years to come it will be a means of saving a great deal of suffering among the people of Sheffield and the surrounding areas." The *x*-ray equipment in the Radium Centre has been supplied by the research department of the Metropolitan-Vickers Electrical Co., Ltd., and the arrangement is such that it is possible to treat two patients simultaneously, but the apparatus is designed so that this is done with a minimum of complications. The equipment, under the control of Dr. F. Ellis, comprises two *x*-ray tubes and associated apparatus, operating at 200,000 volts. The Metropolitan-Vickers high-voltage *x*-ray tube for deep-therapy treatment has been rendered possible by the production in the company's laboratories of a range of low vapour pressure oils for use as working fluids in condensation pumps, thus enabling the highest vacua to be attained without the use of liquid air or other cooling media. These pumps had already been applied to evacuate dismountable valves, and experience had been gained of their operation under commercial service conditions. The feasibility of running vacuum apparatus continuously on pumps had been proved many times, and Dr. T. E. Allibone, who had already demonstrated that *x*-ray tubes operating under laboratory conditions at up to 450,000 volts could be run in this way, was soon able to design a tube suitable for medical service and operating at 200 to 250 kV.

Central Midwives Board

At the July meeting of the Central Midwives Board for England and Wales it was agreed to reply to an inquiry from the county medical officer of health for Hertfordshire that, as the rules stand at present, the administration by midwives of nitrous oxide or, in fact, of any anaesthetic, by any method otherwise than under the direction and personal supervision of a duly qualified medical practitioner, is regarded as treatment outside their province. The following point had been raised by the medical officer of health of a local supervising authority. In his area, he said, there was a nursing association employing a district midwife who did not wish to book abnormal cases, but was required to do so by the association, apparently at the instigation of four doctors on the committee of the association, one or more of whom, it was suggested, would be summoned by the midwife under Rule E. 20 to the abnormal cases, and would thus benefit by the payment of fees by the local supervising authority. The medical officer of health felt that these

cases should be booked by doctors, and that the local supervising authority should not be called upon to pay fees to the doctors because, in the first instance, the case was booked by the midwife and doctors were then summoned under Rule E. 20. He wished to know if he would be justified in telling the midwife that she must not book these abnormal cases. The Board agreed that the medical officer of health had no power to instruct a midwife not to undertake work which, by law, she was entitled to undertake.

India

Health of the Armies in India

The second volume of the annual report of the Public Health Commissioner with the Government of India for 1932 deals with the health of the British and Indian armies in that country. Malaria still remains the chief scourge, 14.5 of all admissions to hospital in the year under review being due to it. Yet there has been a gradual decline in the last decade from an admission rate of 206.8 per mille in 1924 to 84.1 in 1932, when, however, the climatic conditions were generally unfavourable to the spread of malaria. An adverse factor was introduced by the suspension of antimalarial engineering work by the prevailing financial stringency. Partly by a process of exclusion, and partly from slowly accumulating clinical and statistical evidence, the tentative opinion is now expressed that the more extensive and intelligent use of plasmoquine is mainly responsible for the fact that 1932 was a record year. The full results of the first year's systematized administration of the drug are not yet available. In addition to the improvement as regards malaria there were fewer admissions to hospital in 1932 in respect of all the other causes. The combined ratio of constantly sick in hospital and under treatment as out-patients was 47.02 per 1,000 of the strength, compared with 50.71 in the previous year. The actual loss to the army in India in working days was 972,579, as compared with 1,033,607 in 1931. The mortality and invaliding rates were similarly lower. Sandfly fever continues to be a source of anxiety, despite the destruction of breeding places. Certain observations suggest that the infection is not acquired in the barrack rooms so much as during night duty in the trenches guarding the perimeter. Active investigation is being pursued into the habits and bionomics of the sandfly. The admission rate of dengue is diminishing. The diagnosis of sporadic cases of typhus is becoming much more common, probably owing to a more universal recognition of the symptoms of the disease than to an increased incidence, since in the past there is little doubt that many cases were classified as pyrexia of unknown origin. While the general picture corresponded to tick typhus, as described by Megaw and others, it has been impossible in most cases to obtain a definite history of tick bite. There was often a relationship between the onset of the disease and recent residence in forest bungalows and camps, which is in keeping with the hypothesis that typhus is a disease of the wilds, normally occurring in some lower animal which constitutes the reservoir of infection, and conveyed to man by some parasitic arthropod which occasionally selects him as a host. Although there has been a steady decline of the enteric fevers in both the British and the Indian armies, the case mortality has shown little variation in the last few years. Blood culture remains the most satisfactory method of diagnosis. Statistical tables indicate the value of prophylactic inoculation in reducing the incidence of these infections, though it does not influence the case mortality. It is admitted that these findings are at variance with the generally accepted views. The dysentery and diarrhoea figures remain undiminished. It is believed that the policy of multiplying examinations for carriers had led rather to the concealment of active cases, and it is now proposed to abandon it in favour of a system of encouraging the active bacillary case to report sick and to be suspended from duty until non-infective. Intractable chronic or relapsing cases will be discharged. Examination of possible amoebic carriers has similarly failed. At no time has the incidence in units suggested carrier infection ; on the contrary, it has been roughly proportionate to the numbers at risk. Moreover, the number of detected carriers is in excess of the number of cases of amoebic dysentery, and it is concluded, therefore, that the cyst-passer is only one of the factors in infection. Routine investigations for carriers are being abandoned as of inadequate value.

Extension of Madras General Hospital

Sir George Stanley, Governor of Madras, opened, on March 26th, the new institute of radiology, the new surgical block, and the new pathological block of the Madras Medical College ; the new out-patient department of the General Hospital has been in use for nearly two years, and is part of the same scheme for hospital extension in Madras which originated when Lord Goschen was Governor. The General Hospital was founded in 1664 ; it was rebuilt in 1692 and again in 1711. A new site was found in 1753, and extensions followed in 1859, 1874, 1884, 1894, and 1897. Remodelling has steadily continued from 1928 until the present comprehensive scheme, of which part still awaits completion. The Madras Medical College was established in 1835, and its clinical instruction from the first has been carried on in the General Hospital. The first *x*-ray outfit was installed about 1900, and twenty years later the Government organized a radiological service, temporary buildings in the hospital being at first utilized for this purpose. These soon became inadequate ; in 1933 they had to cope with 75,780 sessions. The newly completed institute will be one of the largest and most up-to-date in the world. Instruction in radiology is to be one of its most important functions, and it is contemplated that the University of Madras will grant a diploma in this subject in the near future. It is hoped that much of the administrative expense will be met by contributions from paying patients. The building consists of two blocks, and includes diagnostic and treatment departments, a large remedial exercise and massage hall, a bed-sitting room for barium meal patients, and departments for clinical photography and electrocardiology. A feature is the incorporation of barium sulphate in the actual building bricks used in all the *x*-ray and radium departments ; it is calculated that this affords protection equivalent to at least 8 mm. of sheet lead, while being much cheaper. The radium safe and the alcove in which it stands will be given a protection equivalent to twelve inches of lead. All the rooms in which the work will take place have been air-conditioned, so as to ensure that the temperature shall be 10° lower than that outside and the humidity be maintained at 60 per cent., no matter what the outside weather conditions may be. The entire conditioning plant works automatically. Besides serving the needs of the General Hospital, the institute will be available for the other smaller hospitals in Madras, and for patients coming from any part of the Presidency. The surgical block gives accommodation for an additional 124 beds and four sets of operating theatres. Provision for the nursing staff is made on the top floor, and it will now be possible to train thirty more nurses. The pathological block contains laboratories and rooms for pathology, bacteriology, and biochemistry, and also a large examination hall and library. It is three

stories high, and is connected with the east wing of the old hospital by a new wing, in which are situated the offices of the superintendent and laboratories for the professors. It is estimated that the cost of the whole hospital extension scheme will ultimately exceed fifty-two lakhs of rupees.

Scotland

Problems of Mental Disorder

In the report of the Glasgow Royal Mental Hospital for 1933 reference is made to the renovations and conversions of old buildings which have been effected. An admission centre for new female patients has come into being, the new ward consisting of eight bedrooms and a four-bed dormitory, with sitting room and dining room accommodation. The laboratory of the Neuro-Psychiatric Institute, which is situated in the grounds of the hospital, was opened a year ago, and is both well equipped and modern. An exceptionally large number of new patients were admitted during 1933, most of whom were acutely ill; nearly 60 per cent. were voluntary patients. The physician-superintendent, Dr. A. MacNiven, remarks that this fact is a forcible reminder of the high prevalence of mental illness in the community, and is an indication of the great need for active, preventive, and therapeutic measures. He sees little immediate hope of reducing this incidence, owing to the complexity of the causative factors. So far no one has had the temerity to outline a system of education and training which would have effective prophylactic value, even though great advances in knowledge have been made by psychological experts. It seems unlikely, therefore, that changes brought about by continued social progress, and resulting in an increase of material comfort and a general mitigation of the rigors of life, will result in a corresponding improvement in the standard of mental health of the community, for the reaction of the individual person to a good as well as an evil environment still remains incalculable. Dr. MacNiven adds that it is still necessary to point out that a mental hospital is something more than a prison, so deep-rooted in the community outlook is the fear of and antipathy to mental illness. Financial assistance for mental hospitals is scanty, and there is great need in Glasgow of a psychiatric clinic, similar in character to those in America and Germany. Such a clinic would enable the number of patients in the care of the physician to be diminished, would free the staff from administrative responsibility, and would promote research, which would have great economical benefits as well as improve the prospects of successful therapy. Dr. MacNiven thinks that erroneous ideas about the role of heredity in the production of mental disease are responsible, to a large extent, for the stigma which still clings to this disease. He fears that the prominence given to heredity in the report of the Departmental Committee on Sterilization may increase public anxiety unjustifiably. While mental defect in itself is a permanent bar to social independence, is in some cases inherited, and may therefore be suitably dealt with by sterilization, this is far from being the case in many forms of mental disease, and a distinction should be made. In regard to the latter, knowledge of the relative importance of heredity and environment is still so imperfect that there are very few cases in which a psychiatrist would feel justified in recommending sterilization. The growing interest of the general practitioner in the psychological aspect of his patients is indicated by the increased number of patients referred, in the year under review, to the Western Infirmary Psychiatric Outpatient Clinic. The total was 689, and the figures have steadily risen since the inception of the clinic in 1910. In view of the importance of early treatment this rise is encouraging, but Dr. MacNiven recognizes that the psychiatrist is too often regarded as the last and not the first resort in cases of psychoneurosis and the minor neuroses. He comments also on the value of this clinic in the training of medical students.

Training of Nurses

The Departmental Committee recently appointed by the Secretary of State for Scotland to inquire into the training and registration of nurses has now held its first meeting. The meeting, which was of a preliminary nature, had under consideration the terms of reference:

"To inquire into the training and system of registration of nurses in Scotland, and to recommend what amendments, if any, should be made in the Nurses Registration (Scotland) Act, 1919, or the rules made thereunder, and what other steps, if any, should be taken to improve the existing system of training and registration."

In view of the wide terms of the reference it will be necessary for the committee to review the whole problem of nursing training and registration. Its aim will be to evolve, if possible, a more logical system than the present one, which, although an improvement on the position before the passing of the Nurses Registration Act in 1919, still achieves little in the way of mobility and interchangeability for nurses who desire to attain proficiency in all branches of their profession. The committee will not meet again until after the holiday period—probably some time in October—but in the meantime it is open to receive memorandums on the subject of the inquiry from persons and bodies interested. All communications should be addressed to the secretary of the committee, Mr. W. T. Mercer, Department of Health for Scotland, 121A, Princes Street, Edinburgh.

Gogarburn Institution for Mental Defect

At the opening of two new wards at Gogarburn Certified Institution, Edinburgh, on July 7th, the chairman, Councillor Mrs. Morison Millar, pointed out that the estate of Gogarburn had been purchased in 1923 by the District Board of Control to provide accommodation for at least 500 patients suffering from mental defect. There were already 330 patients, and the new blocks would accommodate 110 more. Bailie Raithby, the senior magistrate, said that Gogarburn Institution was an important part of the health services of the town council of Edinburgh. Occupation was provided for female patients in laundry work, kitchen work, sewing, and house work, and for males in gardening, stoking, and transportation of food and stores. There was also a school conducted by three teachers for the mentally defective children, and troops of scouts and guides had been formed among the patients.

The National Baby Week Council (117, Piccadilly, W.1) has issued two new publications in connexion with its propaganda on nutrition. A four-page pamphlet entitled *The Diet of the Expectant Mother*, by Stuart J. Cowell, M.R.C.P., professor of dietetics, University of London, is specially planned for midwives, and the majority of local supervising authorities distributed copies to midwives during National Baby Week this year. *Thoughts on Food and Feeding* is a propaganda leaflet intended to help mothers and housewives to become interested in the whole problem by securing the best nutrition at the lowest expenditure. Local supervising authorities are proving very ready to support the teaching to midwives embodied in the pamphlet by the distribution of it to mothers and housewives in their area.

Reports of Societies

OXFORD OPHTHALMOLOGICAL CONGRESS

The twenty-fourth annual meeting of this congress was again held at Keble College, Oxford, on July 5th, 6th, and 7th. The foreign and oversea members present were: Professor Joseph Meller of Vienna, Dr. J. Edward Rivera of Peru, Professor Berg of Upsala, and Dr. T. Donald Gordon of Durban.

PROCEEDINGS

These began on July 5th with a short speech from the Master, Mr. CYRIL WALKER, who referred in moving terms to the death of the Immediate Past Master—Mr. BERNARD CRIDLAND—which occurred only five days before the congress assembled. The congress had been founded twenty-five years ago by the late Robert Walter Doyne, but there was no doubt that the continubd success of the meetings had been in very large measure due to the late Mr. Bernard Cridland, who was secretary for fifteen years, and became Master in 1929. He proposed the following resolution:

"That this meeting of the Oxford Ophthalmological Congress desired to express to Mrs. Cridland and family its profound sympathy with them in their recent bereavement; and to place on record their sense of the irreparable loss the Congress had sustained in the death of the Immediate Past Master."

Immediately afterwards Sir FARQUHAR BUZZARD opened a symposium on "The Functional Diseases of the Eye." He described how the opinions of ophthalmic surgeons had changed on this subject during the last twenty-five years, and that now a much more scientific attitude was taken on the matter.

He was followed by Mr. WILLIAMSON-NOBLE, who dwelt on the need for liaison between ophthalmology and psychiatry, quoting cases and discussing their treatment. He suggested a possible explanation of functional amaurosis with inactive pupils. He then discussed in detail the general considerations of ophthalmic methods of diagnosis to eliminate functional from organic causes of asthenopia. The variability in threshold stimuli in the production of headache in different patients was fully discussed. He thought it was possible to over-emphasize the importance of the functional element in the production of asthenopia.

Dr. WILLIAM BROWN said that the psychological factors at work in causing or sustaining functional diseases of the eye were identical in general—namely, inadequate solution of mental conflicts, faulty adjustment to the conditions of life, and a general failure to make headway along the individual chosen path. The baulking of fundamental instincts, especially those of self-preservation and sex, was responsible for much functional eye disease; but mental stress and shock arising in conditions involving eye strain would be specially potent in this direction, as in the case of miners' nystagmus. The visual symptoms in some forms of hysteria are of special theoretical interest, in that they illustrate with particular clearness some of the psychological characteristics of the illness. The disturbances of vision in war neurosis were very instructive, since they portrayed the working of psychological factors in a clear and simple form. In civilian cases of slow and prolonged development the psychological motive could only be revealed by long and painstaking analysis. There were a great number of cases of organic eye trouble with functional overlap, where the disturbance of function was in excess of that to be expected from the organic defect, and was due to the mental reactions of the patient to his disability.

A very interesting discussion followed, which was carried on by Sir ARNOLD LAWSON, Dr. TRAQUAIR, Dr. SAXTY GOOD, Mr. P. H. ADAMS, Dr. GEARY, Mr. GRAY CLEGG, Mr. F. WALKER, Mr. AFFLECK GREEVES, Mr. ALABASTER, and Dr. RIVERA. Mr. AFFLECK GREEVES related a case of retinal glioma in the second eye treated by radium externally. The first eye was removed when the patient was fourteen months old, and at the operation an ophthalmoscopic examination was made of the other eye, which was discovered to be gliomatous as well. It was treated externally with radium in a wax mould, and when the case was seen three years later there was no sign of recurrence.

In the afternoon Dr. H. W. BARBER, physician in charge of the skin department, Guy's Hospital, read an exhaustive paper on the aetiology and treatment of some conditions affecting the eyelids. Eczema was first discussed at length as regards aetiology and treatment, then relapsing streptococcal lymphangitis with or without subsequent elephantiasis. Next Dr. Barber fully described the seborrhoeic state associated with blepharitis, styes, granuloma pyogenicum, sycosis, and rosacea. This was followed by a detailed description of miliary, lupoid, and rosaceous tuberculide, herpes simplex, and disturbances of the autonomic nervous system, and finally certain tumours of the lids were dealt with.

Mr. TUDOR THOMAS showed a patient who had had corneal graft performed on both eyes successfully, and he described the operative technique of the procedure.

Tea was taken at Oriel College, where the members were received by Dr. and Mrs. Franklin.

The annual dinner was held in Keble Hall in the evening, presided over by the Master, Mr. Cyril Walker. During the dinner the opportunity was taken of making a presentation to Professor ARTHUR THOMSON, who had just retired from the professorship of human anatomy in the University of Oxford, and who had kindly allowed the congress to hold its meetings in his department for the last twenty-four years.

OTHER PAPERS

On the morning of July 6th Dr. THOMSON HENDERSON read a very interesting paper on the constitutional factor in myopia. He brought forward the view that axial myopia was the result of constitutional factors, which, by inducing an inadequacy of the sclerotic, cause the posterior pole of the globe to give way under the normal intraocular pressure. Current theories as to the causation of myopia were criticized. It was shown that after the age of 5 years growth took place behind the equator, and hypermetropia resulted from an arrest of such development while myopia resulted from an over-extension. Congenital causes and hereditary influences were not considered to play a great part in determining myopia.

Mr. ARNOLD SORSBY read a paper on the pre-myopic state. The physical and biological conception of the normal eye was considered, and reference was made to the work of Steiger. The curves of the globe and the normal refraction in infancy were fully discussed.

The Doyne Memorial Lecture was given by Professor JOSEPH MELLER of Vienna, and was entitled "Tuberculosis and its Relation to Spontaneous Post-traumatic and Sympathetic Ophthalmia." The aetiological classification of the uveitides was criticized, and the opinion was expressed that a large proportion of these cases were of tuberculous origin. Professor Meller dwelt on the insignificance of the general tuberculous changes found in the lungs or glands of these patients. It was emphasized that only a positive focal reaction to tuberculin made the diagnosis certain. Sympathetic ophthalmia was next considered, and, after a short historical survey, reasons were given indicating its endogenous character. The results of Lowenstein's method of blood examination in cases of sympathetic ophthalmia were described. A culture from the tissue of the exciting eye in a case of sympathetic ophthalmia in 1932 showed tubercle bacilli. Further cases were also reported. In post-traumatic iridocyclitis bacillaemia was proved in 20 per cent. of the cases, but positive bacillary tissue findings were still lacking.

Dr. OLIVER PRATT read a paper on "The Influence of Diet in Ophthalmic Practice." Migraine was first discussed as regards its causation and treatment. Faulty fat metabolism was considered to be an underlying cause in many cases, and it was pointed out that assistance might be obtained for this defect by prescribing glucose. The inflammatory conditions of the cornea and conjunctiva were often associated with excessive carbohydrate consumption, and aggravated by lack of vitamins. Diabetes

was next discussed, and it was pointed out that when this was untreated myopia tended to develop. In diabetic retinitis diet alone was insufficient to arrest deterioration, and properly controlled treatment by insulin was essential.

Mr. BERNARD CHAVASSE read a paper on "Thermoplasty of the Extraocular Muscles." He described a method of heat coagulation of the motor nerve fibres destined to supply that portion of a muscle whose action it was desired to abrogate. A method was also described in which by the same means the effect of a muscle upon the position of the eye might be increased by longitudinal heat shrivelling of its tendon.

Mr. J. JAMESON EVANS and Mr. PHILIP JAMESON EVANS read a paper on "Some Remarks on the Aetiology and Treatment of Congestive Glaucoma." The aetiology of this condition was described as essentially one of angio-neurotic oedema or thrombophlebitic oedema of the ocular structures. The necessity of preliminary treatment, which was mainly medical, was dwelt upon, and the actions and uses of acetylcholine were described.

On the morning of July 7th Mr. FREDERICK RIDLEY read a paper on "The Clinical Significance of the Composition of the Tears," with special reference to the action of lysozyme. Mr. SAVIN read a paper and fully described a case of uveoparotid fever. The patient improved after drainage of an empyema of the right maxillary antrum, and no evidence of tuberculosis was found. The last paper was by Mrs. LYTHGOE, giving the result of some research work on the "Production of Rosettes in the Mammalian Retina." This paper was of great scientific interest, and was obviously due to much thoughtful and original work. A kitten was shown, in which rosettes had been developed in the retina, which could easily be seen with an ophthalmoscope.

The proceedings were closed by a short speech from the MASTER, who stated that 116 members had attended the congress.

OCCUPATIONAL THERAPY

A conference on occupational therapy, organized by the National Council for Mental Hygiene, was held at the house of the Royal Society of Tropical Medicine and Hygiene on July 11th.

Sir HENRY GAUVAIN, who was in the chair in the afternoon, defined occupational therapy as "occupation carried out under direct medical control and supervision with a definite therapeutic object." It should be prescribed, he said, in the same way as medicines with regard to the requirements of the individual patient. The movement was of recent development, and in this country we were merely on the fringe of the subject. The value, both psychological and physical, of the occupational treatment of all persons whose infirmities necessitated a prolonged sojourn in hospital or institutional environment was daily becoming more apparent to all those concerned in their care and restoration to normal health.

Dr. J. B. MCDOUGALL, medical director of the British Legion Village, Preston Hall, gave an enthusiastic and inspiring account of the trades and industries carried on there. The effect on the morale and general health of the men he described as amazing.

Dr. VERONICA DAWKINS, resident medical officer, Maltings Farm Sanatorium, Nayland, discussed the possibilities and limitations of occupational therapy in a sanatorium with a relatively shifting population. She laid great stress on the value of handicrafts, and described a regime carefully graded according to the patient's capacity for work and exercise. In addition to handicrafts, patients assisted in the utility services of the sanatorium, but in all cases this was carefully individualized and carried out under constant medical direction.

Dr. H. J. SEDDON, resident surgeon, Royal National Orthopaedic Hospital, Brockley Hill, Stanmore, warmly espoused the cause in respect of patients treated in that hospital. He stressed its importance in re-educating crippled limbs as well as its psychological effect on the morale of the patients. Controlled occupation was one of the greatest advances in therapy of modern times.

OCCUPATIONAL THERAPY FOR MENTAL AND NERVOUS CASES

At the evening session Dr. NATHAN RAW, the Lord Chancellor's Visitor in Lunacy, was in the chair, and the discussion centred round occupational therapy in the treatment of patients suffering from mental and functional nervous disorders. The principal speaker was Mrs. ELEANOR SLAGLE, secretary and founder of the American Occupational Therapy Association. Her organization has official recognition, and supplies trained workers to all the principal Government institutions for mental illness and mental defect in the State of New York. She also supplies workers to mental hospitals and defective colonies in numerous other States. Mrs. Slagle described recent methods and advances in America. She emphasized the importance of using workers properly trained according to a recognized syllabus. The course in her school took two years, and included not only training in handicrafts but practical experience in their application to the treatment of patients in mental hospitals. It was also necessary, she said, that a considerable proportion of the nurses should have a knowledge of occupational therapy, so that they could supplement and assist the work of the specialist by helping the patients in the wards. It was the practice in America for nurses to have a short course of special training in the application of occupation therapy. She was convinced that this individualistic treatment, which brought the patients into contact with reality and obliged them to live a life approximating, as far as they were capable of it, to the normal was the greatest and most valuable weapon in the armamentarium of mental treatment.

Dr. J. R. REES, medical director of the Institute of Medical Psychology, warmly endorsed Mrs. Slagle's remarks, and said how greatly he had been impressed by the conditions in those mental hospitals in America where he had seen occupational therapy fully organized. It was proposed to start a school of occupational therapy in connexion with the Institute of Medical Psychology in London.

Dr. ELIZABETH CASSON, medical director, Dorset House School of Occupational Therapy, Clifton, Bristol, described the regime at her school. She was convinced of the immense therapeutic value of the time-table of exercise, occupation, amusement, and rest in the treatment both of the psychoses and of the psychoneuroses. Nothing was worse for patients than to drift about aimlessly. The carrying out of such a regime required the loyal co-operation of every member of the staff—medical, nursing, and occupation specialists.

Dr. NORAH HOWARTH, assistant medical officer at Severalls Mental Hospital, Colchester, described the forms of occupation therapy used in that hospital. She distinguished between the employment of handicrafts in the wards and in a special occupation centre, and occupation in the utility services of the hospital. The latter undoubtedly had a useful place in treatment provided that the occupation was fitted to the patient and not vice versa. For example, it was quite a different matter whether a patient was drafted into the laundry because she showed a special inclination for some branch of laundry work, or whether she was sent there because there happened to be a shortage of laundry hands.

Miss RUTH DARWIN, a Senior Commissioner of the Board of Control, said that she was convinced of the great value of occupational therapy in the treatment of mental illness. In order that it should be successful it was necessary to have co-operation from four angles: (1) the medical superintendent and assistant officers, who set the tone for the whole hospital, (2) the visiting committees, (3) the nursing staff, (4) the occupation teachers. Medical superintendents were coming more and more to realize its value, and in several hospitals this system was already in operation. Miss Darwin hoped that in the near future many more would come to appreciate it as a valuable and, indeed, necessary method of treatment. She was convinced that it would soon become a *sine qua non* of a well-conducted modern hospital. She quite appreciated in regard to hospital committees that they

must be satisfied that any expenditure incurred was justified by the results. She was sure that if visiting committees would acquaint themselves with the improved conditions in those hospitals where occupational therapy was well established they could not fail to appreciate its value. The nursing staff also of necessity took their tone from the medical officers. Where this was favourably disposed nurses had already shown themselves able and willing to co-operate to an invaluable degree with the trained occupationists. Occupation to be really successful must not be confined to a special room or an hour two or three times a week, but carried on daily in the wards. It appeared to be a psychological necessity for all humanity, whether mentally sick or mentally sound, to have some occupation with an object.

SUB-SPECIES OF ANOPHELES MACULIPENNIS

At a meeting of the Royal Society of Tropical Medicine and Hygiene at Manson House, on June 21st, Dr. L. W. HACKETT, assistant director, International Health Division of the Rockefeller Foundation, read a paper on the present status of our knowledge of the sub-species of *Anopheles maculipennis*.

Dr. Hackett said that the six varieties of *A. maculipennis*, as identified by their eggs, were each to be found in a number of different areas which were widely separated geographically. Within its own climatic range the presence of a given sub-species was determined by the orohydrographical conditions of the area, or, more particularly, the character of the surface water which the insect required for oviposition. No observations as yet suggested that an environment or micro-environment suited to the adult of either sex could determine the presence or prevalence of any sub-species. It had not been shown that individuals laying the same kind of egg varied significantly in physiology or behaviour, even if they came from different regions. Surveys of new zones proceeded, therefore, on the assumption that the egg type would serve to identify the sub-species, which was broadly homogeneous throughout its range in spite of adaptations to local conditions. Such modifications were apt to be quantitative (as in duration of sexual repose in winter, or range of micro-climatic tolerance) rather than qualitative and genotypic. The biological differences between sub-species were such as apparently to preclude hybridization in nature, and while cross-mating had occurred in the laboratory successive hybrid generations had never been obtained. The sub-species differed also in the frequency and regularity with which they bit man under present conditions of rural life, and since this determined the amount of malaria transmission some races were more consistent vectors than others. Thus *maculipennis* (*typicus*) and *melanoon* had little contact with man; *labranchiae* and *elutus* were continually penetrating into houses in relatively large numbers wherever these races occurred; while *messeae* and *atroparvus* were easily deviated by domestic animals but overflowed into human habitations in search of food in various circumstances, among which were a disproportionate density of anophelines, a scarcity of animals, or the stimulus of certain physical states such as temperature, humidity, etc. Under identical conditions the various sub-species behaved quite differently, being drawn by diverse instincts into different environments and to different hosts. This in general explained their separate roles in the spread of malaria, but whether a given sub-species became a vector or not in a given locality depended also on a complex of local conditions, which might in one place lead it into continual contact with man or in another restrict it to animals to such a degree as to render malaria transmission highly improbable. The range of adaption of *labranchiae* and *elutus* was so wide, however, that there was no region in which either was known to be effectively deviated by domestic animals.

DISCUSSION

Professor P. A. BUXTON said that it was abundantly clear from Dr. Hackett's paper that races or sub-species of anopheles did exist, and that they were different in anatomical characters, in details regarding breeding, and in their relation to malaria. Much of the published work on this subject was, however, in a very confused state. It could be classified in three very distinct categories: first, taxonomy; secondly, biometric facts; thirdly, physiological characters. Considerable progress might come about if attention were paid to physiological characters, not only in the field but also in the laboratory. If, for instance, a stock of *atroparvus* were taken and bred at different temperatures, or fed differently, would one get differences in the eggs or the larvae or the adult structures? No one had any real knowledge of what the answer to that question would be.

Dr. F. W. EDWARDS of the British Museum agreed that the race of *maculipennis* showed very different characters, at least in the eggs, but in regard to certain other distinctions some were less easy to understand. The chief point of distinction in the males was whether a particular hair or spine on the tail end was blunt or pointed, and that might be a matter of mere label rather than pure fact. On the other hand, probably more attention might be paid to colour pattern. However, if observers themselves could not distinguish the insects, the latter managed to distinguish each other, for they never made a mistake on mating, as exemplified by certain species of gnats in this country distinguished only by their minute characters, such as a tiny wing spot and so on. How they did it was a mystery, but undoubtedly the whole truth was being approached as a result of the investigations of Dr. Hackett and others.

Colonel S. P. JAMES remarked that, not being an entomologist, he was a little bit confused, but felt quite sure that all would in time agree about some, if not all, of the varieties of *maculipennis* that Dr. Hackett had described. The late Mr. Richard Burton as early as 1916 had noted two forms of *maculipennis* in Shropshire, one of which was found hibernating completely in the winter in clock towers, church steeples, and the like, while the other passed the winter in stables and in the bedrooms of some kind of houses. Later, in association with Mr. Shute, a great number of observations were made on the habits of these two different forms of *maculipennis*, which were of value in explaining why malaria in England had such a peculiar distribution, especially along the coast, and why it was particularly a disease of certain houses. This house mosquito was now known to be *atroparvus*.

Sir RICKARD CHRISTOPHERS said that the discovery of these races of *maculipennis* was by far the biggest thing in the epidemiology of malaria in recent years, and it was a curious thing that this work should have originated in Western Europe with its three species of anopheles. Further, although in the Tropics it was known that the habits of anopheles were very important, it came somewhat as a shock to find that the presence of malaria in Holland, for example, turned upon a most trivial habit of a particular variety, which was scarcely distinguishable from others. But the greatest change this new work had made concerned the conception of what a carrier species was. Dr. Hackett, who had taken the foremost part of any worker in studying this question, put it clearly in one sentence: "A carrier species is so by reason of the relative frequency with which it bites man twice." Once is not enough—it must bite man twice! Dr. SENIOR-WHITE stated that four years ago Sir Rickard Christophers had said at Algiers that the study of *maculipennis* was becoming a separate science: he trembled to be in charge of an area in the Tropics containing twenty-one so-called species of anopheles, many of which, even on superficial examination, presented something queer in species. Major AUSTEN discussed the vexed question of nomenclature, and supported the plea put forward by Sir Rickard Christophers for its revision; he also upheld Professor Buxton's suggestion for more laboratory investigation. Sir MALCOLM WATSON said there was no doubt that the malaria reports of the League of Nations between 1924 and 1928 had discouraged the prevention of malaria throughout the world. They cast grave doubts on the relationship between anopheles and malaria, and certainly called a halt in many parts of the field. Dr. Hackett's work in Italy and Sardinia gave the malaria position a better course.

In reply, Dr. HACKETT dealt with the status of sub-species, and agreed it might be better to accept Fulleroni's recent suggestion by giving another name to *typicus*; then all the races would have names and none of them would be called the type. He agreed with Professor Buxton that physiological studies were important, and an enormous cage which contained pigs and a stable had been made in Albania, which Lewis was now filling with *typicus* to see whether they could mate under conditions as natural as possible.

STERILIZATION OF THE UNFIT

At a meeting of the London Association of the Medical Women's Federation, held at B.M.A. House on June 26th, with Professor MARY LUCAS KEENE in the chair, Dr. LETITIA FAIRFIELD spoke on eugenic sterilization of the unfit.

Dr. Fairfield based her observations on the recently issued report of the Departmental Committee on Sterilization. She pointed out that the wide popular interest in sterilization had grown out of two main factors. First, the increase in biological knowledge of the hereditary factor in mental and physical disease, and secondly, the sociological outlook, which attributed numerous evils of society to mental and physical "unfitness." The appointment of the committee was inevitable, for it had become fashionable to regard sterilization as a panacea, and in the case of mental deficiency, for example, the over-emphasis on sterilization had been allowed to swamp every other aspect of a many-sided problem. It was only fair to state that the efforts of many prominent eugenists and the findings of the Departmental Committee's report were directed towards correcting these exaggerated claims. Dr. Fairfield then reviewed the findings of the report. She considered that the legal obstacles in the way of the eugenic sterilization of persons of normal mentality had been somewhat exaggerated. As a matter of fact, no one who was able to pay for such an operation at the present day had the least difficulty in getting it done, and probably more hospitals were performing such operations than was supposed. No case of a surgeon suffering any penalty for doing a eugenic sterilization was on record, and it was impossible to imagine such a case being brought into court, provided that genuine grounds existed for believing that diseased offspring might be procreated. It was, however, recognized that the sterilization of mental defectives was undoubtedly illegal.

In examining the present knowledge of the causation of mental defect the committee had evidently found itself on highly contentious ground. All their witnesses agreed on the important part played by "heredity," but they were not at one on the exact meaning of the term. Some would include in the family tree any deviation from the normal, including epilepsy, instability, delinquency, and insanity, while others would confine the term to the transmission of a single defect such as certifiable mental deficiency. Naturally the percentage of "hereditary" cases differed according to the view taken, the variation extending from 5 to 80 per cent. The report had recorded some interesting researches into the mentality of the offspring of defectives, who showed an unexpectedly high rate of mental deficiency—namely, nearly one-third of surviving children. Dr. Fairfield pointed out, however, that the figures were overweighted, as defective offspring were likely to call the attention of the authorities to defective parents. The report further blackened the picture by bracketing the "subnormal" and defective children, although the former might be little different from the general population. While assessing the part played by environment in causing mental abnormality, many witnesses stressed the point that this factor acts in combination with defects of heredity, the thesis being: "environmental factors may accentuate inherited weakness." The evidence also brought out a point which was still often overlooked—namely, that mental deficiency was so devious in its manifestations that it could not conceivably be a single unit transmissible on Mendelian lines, though certain sub-varieties might be. The final recommendations of the committee condemned compulsory sterilization as unjustifiable in the present state of knowledge of genetics, and likely to arouse public hostility. It was not clear, however, whether it would be possible to keep voluntary sterilization really voluntary. It was difficult to imagine the precautions which would prevent enthusiastic committees from using the social services (such as outdoor relief) or the bait of discharge from an institution as an inducement to sterilization. This was avowedly happening in other countries where sterilization measures were on the Statute Book. As regards high-grade mental defectives, the committee evidently considered it an easy matter for a doctor to decide whether they were or were not mentally competent to give a valid consent to the operation, but no standards were laid down, and Dr. Fairfield considered that in practice the point would be a very difficult one to determine. As regards mentally normal persons, it seemed to have been overlooked that any attempt to regulate voluntary eugenic sterilization would seriously restrict the freedom of action now enjoyed by the "well-to-do"—that is, by all who could afford to pay for an operation. In future they would have to submit to an elaborate process, beginning with two medical certificates, and involving reference to the Ministry of Health, and possibly to the Board of Control, or a special advisory committee of experts. Notoriously, in the sight of a Ministry a thousand years was but as a day, and the loving couple who longed to be united could hardly be expected to await inevitable official delays. It seemed probable that the regulation of voluntary sterilization was doomed to failure. In view of the small proportion of institution cases which would be suitable for sterilization, and the grave risks involved by any form of legislation on the subject, it seemed doubtful whether the recommendations of the report would receive general support.

Dr. C. P. BLACKER, the general secretary of the Eugenics Society, said he found himself in entire agreement with most of the points which Dr. Fairfield had made. The propaganda in favour of legalizing eugenic sterilization would, he said, do more harm than good if it were seized upon by local authorities as a justification for inertia, or if it were interpreted by the general public as a measure likely to save the pocket of the ratepayers. Much confusion also centred around the meaning of the word "heredity." According to the report of the Committee on Mental Deficiency appointed by the British Medical Association, the term "heredity" implied "that in the ancestry of any given case of mental deficiency there has existed a morbid condition of bodily and/or mental development, which may have taken the form either of mental deficiency or of some neuropathic condition, or of some other defect due to damage inflicted to one or other of the germ cells before fertilization." According to this sweeping definition we would be justified in regarding as hereditary a given case of mental defectiveness if it were known that there had occurred in the ancestry of that defective a case of cleft palate in the time of William the Conqueror. Careful scrutiny of recent American and Continental investigations into the heredity of mental deficiency pointed to the conclusion that the more carefully the pedigree was investigated the greater was the importance attributed to heredity as a causal factor, and the larger was found to be the percentage of parents of high-grade defectives who were themselves on the borderline between subnormality and certifiable defectiveness. At the same time, it should be remembered that, though discussions on sterilization continued to focus themselves upon mental deficiency, the recommendations of the Brock report extended far beyond this sphere. The eugenic benefits, in fact, of legalizing the voluntary sterilization of mental defectives would probably turn out to be small, as compared with the results of legalizing it for persons who had recovered from mental disorder and for persons who exhibited or carried mental or physical disease or defect. The results, said Dr. Blacker, of the uncertainty in regard to the present state of the law relating to the sterilization of persons who are *compos mentis* had at present the effect of discriminating against the poor. The legal risk, admittedly small, was willingly taken by

surgeons who operated, in a private capacity, upon paying patients ; the same surgeon, however, before operating upon a hospital patient usually found it necessary to obtain the consent of the superintendent of the hospital. This consent was often withheld, partly for fear of alienating Roman Catholic subscribers to the hospital, and partly because, in view of the already long waiting list, many hospitals hesitated to incur the smallest legal risk. Such discrimination between rich and poor was unfair, and it constituted a good argument for regularizing the position for people of all classes by Act of Parliament. In the matter of safeguards, said Dr. Blacker, a course had to be steered between two opposing camps of critics, and, in his opinion, the recommendations of the Brock Committee constituted a happy *via media*. Some safeguards, he thought, were necessary. It was to be remembered that vasectomy was a simple operation, capable of being performed under a local anaesthetic ; it took but a few minutes, and necessitated at most a day's absence from work, yet it produced irreparable and irreversible effects. Every new law was exposed to certain criticisms and objections. Dr. Blacker was far from denying that a voluntary sterilization law along the lines of the recommendations of the Brock Committee was exempt from these, but in deciding whether to oppose or to support it the question we had to ask ourselves was: "On balance did the advantages outweigh the disadvantages?" and he believed that in this instance the answer was "Yes."

CORRESPONDENCE

Prescription of Thyroid

SIR,—Your article in the *Journal* of June 9th serves a very useful purpose in drawing attention to the danger of prescribing overdoses of thyroid owing to the confusion between the dosage of fresh gland and dry gland preparations to which you refer. The letters of Dr. W. Martin and of Mr. N. Evers in the *Journal* of June 23rd show there is still some difference of opinion as to the relative strength of the two, but in practice I have found that, as you state, 1 grain of dry thyroid *B.P.* is equivalent to 5 grains of fresh gland. The dangers and ill effects of continued overdosage are well illustrated by the cases of thyroid addiction described by Dr. S. W. Patterson in the *Journal* of July 7th.

In prescribing dry thyroid it is important to bear in mind the amount of it which is equivalent to the daily output of the normal gland of an average adult. This varies in different individuals, but long experience has shown that in the majority of fully developed cases of myxoedema, in which the gland has become functionless, a daily dose of from 1 to 2 grains is sufficient to restore and maintain good health for many years, so that this amount may be taken to represent the daily quantity of secretion produced by a normal gland. In the treatment of these cases there is nothing to be gained by exceeding these doses. In mild cases of hypothyroidism, in which the gland still supplies a small but insufficient amount of secretion, a single daily dose of 1/2 grain is adequate. When it is desired, as a means of treatment, to raise the basal metabolic rate above the normal level larger doses are necessary, but should be employed under medical supervision, so that the effect on pulse rate and weight and, if possible, on the basal metabolic rate may be observed, and the dose diminished as soon as any ill effects appear. The official *B.P.* dose is given as 1/2 to 5 grains. The latter is too large, as the continued use of 5-grain doses two or three times a day is apt to produce the symptoms of induced hyperthyroidism observed in Dr. Patterson's cases.—I am, etc.,

Manchester, July 11th. GEORGE R. MURRAY.

Pyloric Stenosis

SIR,—The interesting article by Dr. H. L. Wallace and Mr. L. B. Wevill and recent correspondence in the *Journal* on congenital hypertrophic stenosis of the pylorus, reveal many points of view on which differences are manifest and results by no means uniform. As one of your correspondents states, team work is essential ; the practitioner, the paediatrician, and the surgeon all play their parts, but sufficient stress is not laid by him on the importance of early diagnosis and the part played by the practitioner in making this possible. Valuable as is the assistance of the paediatrician in pre- and post-operative care, the surgeon prefers the infant to reach his hands within, say, ten days of the onset of cardinal symptoms, before wasting has become excessive.

Under such circumstances the mortality should not be more than 5 per cent. As I pointed out in 1927,[1] a group of ninety cases operated on at the Birmingham Children's Hospital had a mortality of 40 per cent. Among these were fifteen "private" patients, none of whom died. These cases were treated in the private ward of the hospital under conditions exactly comparable to those in the general wards, but they differed inasmuch as symptoms had, on the average, only been present for thirteen days in this group, compared with eighteen days in the cured cases from the ordinary wards, and twenty-five days for those who died following operation.

If a palpable tumour is to be a cardinal point in the diagnosis, as we are accustomed to regard it, the examination must be painstaking and prolonged. Its presence clinches the diagnosis, and differentiates cases of pyloric spasm. In the last two years, in cases referred to me by my colleague Professor Parsons, palpable tumour was found by him in forty-one cases out of forty-three. In one case it was definitely not felt, and in the other no note was made.

Radiography appears to be used but little in this country as a routine method of differential diagnosis. In France it appears to be otherwise ; Poucel, in his recent monograph,[2] regards it as a normal and harmless procedure. In Birmingham we regard it as usually unnecessary and not altogether harmless.

Since the commencement of 1930 I have operated on eighty-nine cases to date, with seventeen deaths—a mortality of 19 per cent. This compares favourably with the group of ninety cases which I published in 1927 with a mortality of 40 per cent. ; and, though it is undoubtedly true that most of the seventeen cases might have been saved with earlier diagnosis, yet I think great credit is due to those upon whom the responsibility for the initial diagnosis rests—namely, the practitioners—for the improvement in results already manifest in a disease which has only been generally recognized and adequately treated for just over a decade.—I am, etc.,

Birmingham, July 10th. SEYMOUR BARLING.

Preliminary Ligature in Toxic Goitre

SIR,—There are a number of cases of toxic goitre in which a primary radical operation, even in the best hands and after careful preliminary treatment, is associated with a considerable, indeed an unjustifiable, risk. I refer particularly to cases in which the goitre is large and the patient over 40 years of age. A preliminary ligature of both superior thyroid arteries will almost invariably effect a notable improvement in such cases. I would go further and maintain that the subsequent thyroidectomy should be done in two stages.

[1] *Lancet*, September 3rd, 1927, p. 492.
[2] Poucel: *La Sténose Hypertrophique du Pylore chez le Nourisson*. Paris: Masson et Cie. 1934.

A death following thyroidectomy means bad management—a failure to assess just how much the patient will stand at one time. I look back to some of my early cases in which death followed a subtotal thyroidectomy with keen regret. I failed to discriminate and to recognize the case in which operation by stages is the secret of success.—I am, etc.,

Edinburgh, July 13th. D. P. D. WILKIE.

Notification of Tuberculosis

SIR,—In the closing paragraph of "Musings in the Garden: Fifty Years' Association with the Tubercle Bacillus," published in the *Journal* of June 23rd, I expressed the hope that I had not trodden unwittingly on anyone's toes. Least of all could I dream of disturbing my old and honoured friend, Sir Arthur Newsholme, who takes me rather to task in an historical note in this week's issue for doing him less than justice. Nothing was further from my thoughts.

Looking back through the years, Sir Arthur may realize the feeling of acute disappointment which overtook me when, eighteen years after advancing a strong plea for the compulsory notification of pulmonary tuberculosis—a plea which was based on continuous observation at the tuberculosis dispensary (1887-90)—I read in his volume, published in 1908, that the considered opinion of the Chief Medical Officer of the Local Government Board of England was that, at that date, "it would be inexpedient, unwise, and of relatively little use to advise the general adoption of compulsory notification of phthisis."

This recalled the "stone wall" of which Sir Henry Littlejohn had warned me eighteen years previously. It was the more disappointing, since in the interval compulsory notification had been introduced in New York in 1897 through the weighty authority of Herman Biggs, and the Local Government Board of Scotland, in a circular dated March 10th, 1906, had declared that notification was necessary if the Public Health Act (Scotland) was to be applied effectively to pulmonary tuberculosis, with the result that by 1908 nine local authorities, including Edinburgh, had applied for the Board's sanction to the adoption by them of compulsory notification. The fact would seem to have been that Sir Arthur was himself up against a stone wall, and the words quoted represented less his personal views and rather those of the Chief Medical Officer, who was encountering, as he tells us, "almost insuperable difficulties in overcoming central official opposition."

I would assure Sir Arthur that, in citing his words in my address, I was recalling events of the past in the simplest way possible. There was no *arrière pensée*. Happily, as we get up in life, we become more understanding of the complex conditions which govern the course of events.—I am, etc.,

University of Edinburgh, July 15th. R. W. PHILIP.

Point of Entry of the Tubercle Bacillus

SIR,—Sir Robert Philip, in his most interesting address "Musings in the Garden" (*Journal*, June 23rd, p. 1105), has once again done a great service to the cause of combating tuberculosis by giving it as his opinion that the lymphatic system is the main port of entry of the tubercle bacillus. My own much more limited experience definitely confirms this conclusion, and in a paper published in the *Journal* in August, 1929, I endeavoured to show that pulmonary tuberculosis was secondary to lymphatic infection. The opinion that infection is mainly by the respiratory tract dies hard, although all the facts, as I see them, are entirely against such an assumption. I was interested in his view that the tubercle bacillus can pass through a young mucous membrane without showing any trace of its passage, and that no gross lesion may be evident in the lymphatics. Certainly the percentage of children showing small, shotty cervical glands is very high, even in those enjoying excellent health. It is only very occasionally that infected glands call for surgical intervention. A good many years ago I asked myself the question, Is the lymphatic gland of the child more permeable than that of the adult? I passed on this question to a distinguished physiologist, but he was unable to give an opinion. On clinical grounds I certainly think that the young lymphatic glands are more permeable, and, if we can accept this assumption, it becomes much easier to accept the idea of the lymphatic system as the main port of entry, and follow intelligently its course.

In my own experience of children the number showing clinical evidence of tuberculous infection was as high as 15 per cent., and the percentage was highest among those suffering from some infection of the nasopharyngeal cavity. The percentage of children giving a positive reaction to tuberculin is, of course, very much higher. The natural drift of any infection, particularly a chronic and persistent invader like the tubercle bacillus, is towards the lungs, and if the resistant power of the lungs was not very high the percentage of sufferers from pulmonary tuberculosis would be very much greater. We know that the tracheo-bronchial glands are very frequently tuberculous, and in that respect the main principle of Parrot's law is correct in stating that the infection present in the bronchial glands is secondary to infection from the lungs. It does not necessarily follow, however, that there was any real invasion of the lung parenchyma. It is much more in keeping with our knowledge of the history of pulmonary tuberculosis cases that the tubercle bacilli, coming along in small numbers, are quickly taken in hand by the defensive mechanism and hurried towards the root glands. The continual bombardment, so to speak, must lead to pathological changes in those glands which would render them less permeable, and the tubercle bacilli would be held up in that situation.

This suggested course of events would explain the high percentage of children giving a positive tuberculous reaction compared with the really small percentage showing definite evidence of pulmonary tuberculosis. When adolescence is reached the tuberculous infection has been established for many years, and the subsequent course depends on the efficiency of the defensive mechanism, as well as the degree of infection, which again is influenced by many factors—such as hygienic conditions, worry of any kind, depression from long and serious illnesses, etc. There are no reliable means which will enable us to make an accurate assessment of subsequent events.

Acceptance of this theory makes it easier to follow the course of the disease. Fibroid phthisis can be explained by a slow, backward spread of the infection along the lymphatics; even bronchiectasis could be similarly explained. A sudden invasion of a lung, or part of a lung, repeatedly noted by me, would result from an infected caseous gland rupturing into a bronchus; miliary tuberculosis would be due to a sudden mass infection from an acutely inflamed tuberculous gland finding access to the lungs, via the blood stream, and this would also explain the widespread infection. Miliary tuberculosis and tuberculous meningitis often attack people who have previously enjoyed good health, particularly so in the case of meningitis. A sudden mass infection from outside the body of a relatively *healthy* person, via the respiratory passaegs, is much less likely than a mass infection from an already infected source inside the body.

All my experience and observations, extending over a period of twenty years, forced me to the above con-

clusions ; infection from some unknown origin, coming like " a bolt from the blue," is not in the least convincing.—I am, etc.,

Birkenhead, June 29th. D. J. GAIR JOHNSTON.

Sunbathing and Tuberculosis

SIR,—I do not wish to deny the possibility that prolonged exposure to sunlight may aggravate active pulmonary tuberculosis, or even be responsible for the lighting up of a latent focus—a popular belief anyway. Nevertheless, before the cases described by Drs. Hope Gosse and Erwin (July 7th, p. 15) are accepted as evidence in support of this hypothesis certain points should be kept in mind. Only five of the eleven patients had been in good health before the sunbathing. In the remainder symptoms had been present before, which suggest that the aggravation afterwards might well have been due to the natural progress of the disease. In view of the universal popularity of sunbathing during the last two or three years the five cases could presumably be the result of coincidence. Moreover, it is possible that some other associated factor may play a part—for example, the excessive exercise whilst in an unfit condition often indulged in during a holiday. Finally, it would have been of interest to compare the proportion of fair- and dark-haired individuals in the exposed and non-exposed patients in view of the difference in tolerance to sunlight by pigmented and non-pigmented people.

Drs. Hope Gosse and Erwin's paper has attracted attention to a subject which urgently requires further investigation, owing not only to the popularity of sunbathing, but to the difference of opinion which, I believe, still exists on the danger of ultra-violet therapy in pulmonary tuberculosis.—I am, etc.,

Cannes, July 12th. G. GREGORY KAYNE.

SIR,—There is little doubt that the danger referred to by Drs. Hope Gosse and Erwin does exist when exposures are uncontrolled and over-exposure occurs. The warning is indeed timely. But their complete condemnation of heliotherapy as a therapeutic measure in pulmonary tuberculosis is not confirmed by the practical experience of some twelve years in this institution, where heliotherapy has been used for non-febrile pulmonary cases throughout this period. For the last six years no less than 43 per cent. of all cases of pulmonary disease have had a course of heliotherapy, and 40 per cent. have had general carbon arc treatment in the winter months. The type of case admitted during these years may be briefly indicated by the fact that 58 per cent. were classified as B3 cases. The treatment must, however, be properly organized under experienced medical supervision, and a nurse should be on duty solely for the purpose of accurate timing of exposures, checking pulses and temperatures before and after exposures, and so on, without other duties to interrupt her. Under these conditions I have never seen any serious ill effects, for unsuitable cases are quickly detected and treatment is limited to shade exposures only or given up.

Nearly all our most successful cases have had light treatment in some form in addition to any other special treatment which may have been given. A moderate dose of heliotherapy increases metabolism whilst the patient is still at rest, and is theoretically just what these patients require. In practice, however, there are many patients who have not the power of response to this stimulus, just as there are similar cases of non-pulmonary type whose response is inadequate. Weakly or toxaemic patients are generally unsuitable, as are those with a history of frequent haemoptysis or staining. Nevertheless, the figures given above show that many cases are suitable, and in my opinion this method of improving general fitness ought not to be neglected.

A striking indication of the value of heliotherapy and aerotherapy is the improvement in the condition of the skin, subcutaneous tissue, and muscles—a change so marked when dealing with non-pulmonary tuberculosis, and obtainable also in many pulmonary cases. This change is generally accompanied by an increased feeling of well-being and improved appetite and sleep. I agree entirely with the authors, however, that the treatment is dangerous without proper control. Another danger is that of patients sitting in the hot sunshine when fully clothed for an unlimited time without supervision. This is a common cause of fever in pulmonary patients, and one not generally realized.—I am, etc.,

J. E. WOOD,
Medical Superintendent, King George's
Liphook, Hants, July 13th. Sanatorium for Sailors.

Ligature of the Innominate Artery

SIR,—Sir William Wheeler's reference in the *Journal* of July 7th (p. 38) to the late Mr. Coppinger's celebrated case of ligature of the innominate artery prompts me to state that a second successful ligation of the innominate artery was carried out by myself, in the same hospital, in 1932. The patient, a middle-aged woman, was admitted with a rapidly growing and intensely painful right subclavian aneurysm. The Wassermann reaction was negative. A curious feature of the case was that no pulse could be felt in the left subclavian or in any part of the left arm. The artery, exposed by removal of the inner end of the clavicle and right half of the manubrium sterni, was doubly ligated with stout linen thread. The common carotid was not tied. The patient made an excellent recovery, pain completely disappeared, the aneurysm consolidated, and she is now carrying on her occupation of insurance collector as actively as ever.—I am, etc.,

Dublin, July 9th. CHARLES MACAULEY.

Tests of Renal Function

SIR,—Dr. F. S. Fowweather's paper on " The Examination of Renal Function " (*British Medical Journal*, July 14th) is valuable in pointing out the fallacies of the urea clearance test as ordinarily performed, and also in suggesting methods by which these fallacies may be minimized. The chief objection to the test, in my opinion, is its obvious pretence to a scientific accuracy which it does not possess, even in its modified form. In Table II of the paper referred to, showing the results of the test in patients with renal disease, the only case mentioned as having uraemia shows a urea clearance considerably better than the average for the group. Actually I do not find in practice that the urea clearance test is as helpful as a *dilution and concentration test* (a more accurate way of performing the simple test of function described by Dr. Fowweather), and examination of the blood for non-protein nitrogen and indican. The urine tests show what the kidney can do, and the blood tests show what it has been doing—that is, how near the patient is to uraemia.

There are two statements in Dr. Fowweather's paper which I would like to question. The first is that in chronic nephritis " albuminuria is rarely more than slight, and often is absent altogether." This is an assertion which I hold to be erroneous, handed down from the days when high blood pressure was sufficient evidence for a diagnosis of " chronic interstitial nephritis "—that rubbish heap of cardio-renal disease now fortunately unnecessary. In all cases of true chronic nephritis albuminuria is

definite, if not copious (usually 2 to 5 grams per litre), and in cases of hypertension with nephrosclerosis all those that I have seen develop renal failure have had a very definite and constant albuminuria. In fact, I regard the presence of albuminuria (more than a trace) as a fairly good rough indication of involvement of the kidney (nephrosclerosis) in essential hypertension. The only exceptions have been cases of essential hypertension which were without serious renal insufficiency until heart failure occurred, and, by lowering the blood pressure, caused oliguria and consequent uraemia.

When oliguria develops in such a case the specific gravity of the urine rises; and this brings me to the second statement, which is that "failure of concentration is compensated for by polyuria." Surely the truth is that "compensatory polyuria causes failure of concentration." The polyuria represents the functional reserve[1] of the kidney, called out on account of the loss of renal substance. According to Verney's law the composition of the urine depends upon its rate of secretion. The rapid secretion causes the failure of concentration, as is well shown by the above observation that if anything (such as heart failure) interferes with the rate of secretion the concentration of the urine increases. Thus the power to produce a moderately concentrated urine is not lost, but merely in abeyance.—I am, etc.,

Sheffield, July 16th. ROBERT PLATT, M.D., M.R.C.P.

Agranulocytic Angina

SIR,—I have read Dr. A. Daly Briscoe's account of his very interesting case in the *Journal* of July 14th (p. 61). The dysuria and the pain on defaecation which "became the prominent features of the case," and were associated with a large tender prostate, suggest that the condition may have been secondary to some focus of acute infection in the prostate, and the case, therefore, one of malignant neutropenia rather than a primary agranulocytosis.

Dr. Briscoe rightly stresses the rarity of the disease, but I cannot accept his statement that only five cases have been reported in this country when he omits to mention the case I myself recorded in 1933[2]—this was the first case in English medical literature in which pentose nucleotide K 96 was used. Even though the reported cases are few the true incidence of the disease is not thereby reflected: a record of a case is only made if it presents unusual features, if a new therapeutic agent is made available, or if light can be thrown on the cause.

Out of a most extensive literature on the condition two facts only of importance have emerged—the value of pentose nucleotide in treatment, and the importance of amidopyrine, either by itself or in combination with a barbiturate, in causation; I feel that no writer should record a case without mentioning whether these drugs have been given or not.

There seems no question, from reports from all parts of the world, that amidopyrine plays a part in the production of agranulocytosis; to quote from the latest report of the Council on Pharmacy and Chemistry of the American Medical Association[3]: In fact no other agent has been found, either chemical or bacterial, which has been a factor in causing so many attacks"; "No definite case has been recorded in which a barbiturate alone is responsible," but in many cases a combination of amidopyrine and a barbiturate has been incriminated.

Individual susceptibility to amidopyrine is doubtless a factor, but caution in its use is indicated, with control of the white blood cells if its use is continued. The difficulties of the position are increased when the presence of amidopyrine (pyramidon) is concealed by the name of some proprietary preparation of it with a barbiturate—allonal and cibalgin are two examples of this. I should add that in the case I published the patient had not taken amidopyrine or a barbiturate.—I am, etc.,

ERNEST BULMER, M.D.,
Birmingham, July 15th. M.R.C.P.Ed. and Lond.

[1] Verney, E. B.: "The Reserve Forces of the Kidney," *Lancet*, 1930, ii, 63.
[2] *Lancet*, May 27th, 1933, p. 1119.
[3] *Journ. Amer. Med. Assoc.*, June 16th, 1934, p. 2183.

Asthma and Chronic Bronchitis

SIR,—Dr. H. S. Russell in the *Journal* of June 16th (p. 1097) writes: "It appears probable that the action of sodium iodide [in cases of asthma and chronic bronchitis] depends mainly on stimulation of thyroid activity, and that equally good results might be obtained by the administration of tab. thyroid. *B.P.*"

There is no conclusive evidence that cases of asthma (and chronic bronchitis) are in particular the result of thyroid insufficiency. Both chronic bronchitis and asthma essentially are due to disorder of the vago-sympathetic respiratory complex, an anatomical fact which may be amply demonstrated by careful *x*-ray investigation of the bronchial tree injected with a radio-opaque substance. Lipiodol injections indicate also that asthma, asthmatic bronchitis, chronic bronchitis, with their satellites bronchiectasis and emphysema, are each and all due to the effects of this disorder in the respiratory department of the autonomic nervous system. The basal cause, or starting-point, of the incoordination of the normal balance between vagal and sympathetic influences is another matter, which must needs be referred to biochemists and to the physiological laboratory. It is fundamentally a question of nutrition.

Adrenaline antagonizes vagal influences by stimulating the sympathetic. The suprarenal glands supply adrenaline, the secretion of which is under the control of the autonomic nervous system. It is logical, tempting, but perhaps speculative to suppose that there is an internal secretion which antagonizes sympathetic influences in the bronchial tubes, or which stimulates the vagus nerve as in a parallel fashion adrenaline antagonizes the bronchial vagus, the vagal secretion being also under the control of the autonomic nervous system, which, incidentally, supplies all the viscera. That this is not wholly speculative is indicated by the recent work of Dr. E. Arnold Carmichael and Professor F. R. Fraser on the effect of acetylcholine in man.[1] The autonomic nervous system is not dependent on the metabolism of a single endocrine gland. The relation of the autonomic nervous system to respiratory ailments needs further investigation, having in view the work on the involuntary nervous system by W. H. Gaskell and J. N. Langley, and its more recent application to diseases of the viscera under the control of the autonomic nervous system.

The stethoscope, introduced by Laennec in 1819, in conjunction with percussion, recommended by Auenbrugger in 1751, has been relied on for diagnosis in diseases of the chest for over a hundred years, and it is no disparagement of these still indispensable methods to say that for diseases where bronchial tubes are in question the stethoscope must make room for later developments in diagnostic procedure—*x* rays, lipiodol, the bronchoscope. The evidence of the eye is less open to error than that of the ear, since with the stethoscope auditory impulses must be transformed into mental pictures, not always true.

When Pasteur and his contemporaries established the part played by micro-organisms as causal factors in disease, bacteriology claimed chronic bronchitis as a bacteria-produced disease. It would appear from clinical and anatomical evidence derived from *x*-ray examination

[1] *Heart*, 1933, xvi, Nos. 3-4.

of bronchial tubes injected with lipiodol that bacteria, though undoubtedly present in the bronchial tree, and indisputably modifying the cause of, and producing definite reaction in, the disorder, are not the primary cause of chronic bronchitis. There is evidence, supported by the same method of examination, that asthma, chronic bronchitis, bronchial asthma, bronchiectasis, and emphysema, usually considered independent diseases, need re-investigating, re-sorting, reclassifying, rearranging into a respiratory group whose fundamental causes must be looked for among disorders of the autonomic nervous system, which must be left by the anatomist to the biochemist and to the physiological laboratory. It may be that we shall have to await the successful application of cinema technique to the *x*-ray and radio-opaque-substance investigation for visual confirmation of this statement. (Some writers claim that they can make out movements in the lipiodolized bronchial tubes depending on vagal and sympathetic influences—by screening the lung after the injection.)

With regard to evidence which may be drawn from stained pathological sections of the bronchus in chronic bronchitis—with the exception of the micro-organisms in the expectoration and the destruction of the bronchial ciliated cells—there is nothing in the characteristic, thickened submucous coat in chronic bronchitis and asthma which is inconsistent with a non-inflammatory sero-cellular exudation due to neurovascular causes. The frequent association of chronic bronchitis with disorders of the autonomic nervous system—for instance, mucous colitis—commented on at the Annual Meeting of the British Medical Association in 1923 by Lord (then Sir Thomas) Horder, strengthens the thesis that chronic bronchitis is essentially a neurovascular disease. The anatomical relation of asthma and chronic bronchitis must be reviewed in their relation to each other and to the autonomic nervous system, and determined before the deeper biochemical problems as to basic causes are considered. Both diseases are illusive. Investigators need to be critical.

With regard to asthma, theories abound, probably all in some degree correct, and there are many who, in their eagerness to discover a new and specific cure, follow tracks which lead nowhere. The will-o'-the-wisp conducts inquirers in the direction of, and may approach close to, the truth, but it never reveals the actual sanctuary. I wonder whether Dr. Russell is following an asthma will-o'-the-wisp when he sets out to discover in the thyroid gland the *fons et origo mali*?—I am, etc.,

London, W.1, July 10th. J. B. CHRISTOPHERSON, M.D.

Vitamin A Deficiency in Childhood

SIR,—I have read with great interest Dr. Helen Mackay's article on vitamin A deficiency in children in the *Archives of Disease in Childhood*, to which you refer in your issue of June 30th. I would be glad if you would allow me to offer a criticism of this most important work.

The only diseases which were more prevalent among children not receiving extra vitamin A were lesions such as sore buttocks, sore scrotal skin or foreskin, intertrigo, dribbling eruptions, etc. These conditions are usually regarded as being largely due to lack of care and attention on the part of the mother or nurse, or, in Dr. Mackay's own words, "to some form of local irritation."

The physiological effect of the administration of special preparations, whether containing vitamins or not, has been admirably shown by Dr. Sutherland in his recent work on vitamins, where he found that in 80 per cent. of children fed on capsules containing no vitamins the parents considered that a marked improvement had taken place.

In Dr. Mackay's investigation is it not possible that the mothers, or those in attendance on the children, were conscious of the fact that their children were receiving special attention, as the vitamin A, in addition to being incorporated in the dried milk, was also given in the form of an emulsion? These parents would thus be expecting an improvement, which would result, perhaps unconsciously as far as they were concerned, in sufficient added attention to their children to give rise to the "statistically significant" improvement noted in their condition.—I am, etc.,

Slough, July 16th. W. H. S. WALLACE, M.D., D.P.H.

Barbiturate Poisoning

SIR,—Apropos of your review of the work of Professor Carrière and his associates on acute barbiturism, may I draw your attention to a recent article published by these workers (*C. R. Soc. de Biol.*, 1934, cxvi, 768). In this they deal with lesions observed in different organs post mortem. The severity and extent of the renal lesions are a function of the duration of the coma. Simple tumefaction is found in cases of brief duration. In animals treated with strychnine no difference in the intensity and general nature of the lesions was observed. On the contrary, acute pulmonary emphysema was found only in rabbits which had consumed large amounts of strychnine. Nothing is said of the influence of alcohol in this respect.—I am, etc.,

Paris, July 8th. D. T. BARRY.

Criticism of Ante-Natal Work

SIR,—The destructive criticism of the results of ante-natal work, by Mr. A. J. Wrigley (*Journal*, May 19th, p. 891), has been very timely, and the call for constructive criticism by Mr. Aleck Bourne (June 23rd, p. 1141) has stimulated me to express my views about ante-natal work in those cases which come under the classification of minor degrees of disproportion, and which often unnecessarily, as Mr. Wrigley has conclusively proved, undergo the procedure of premature induction of labour.

One of the defects in ante-natal work on these cases has been due to non-recognition of the fact that a large proportion of these potentially abnormal cases undergo a natural process of expansion of the pelvis, which converts them into potentially normal cases. Pelvimetry is one of the most important means of examining these cases, and, apart from a history of a previous normal labour at full term with a normal-sized foetus, it can only be outclassed by the methods of determining the relative proportion of the unmoulded foetal head to the pelvis in the last five weeks of pregnancy. The result of the latter method will depend on the skill of the observer, and will only be possible in ante-natal clinics when the clinic accoucheur attends the childbirths himself. Hitherto, the clinic doctor usually has to rely on pelvimetry, other skeletal considerations, history of previous labours, etc.

The most reliable measurement in internal pelvimetry is the diagonal conjugate, but it is not a very easy procedure in primiparae, and the large number of women who object to internal examinations will go to the doctor who avoids these examinations. In external pelvimetry the most useful measurement is the external conjugate. This is the measurement to which I wish to draw attention.

It is generally taught that an external conjugate of less than seven inches indicates pelvic contraction in the majority of cases, and that with a further reduction of half an inch contraction is practically invariable. Six years ago a private patient of mine had a pelvis of the generally contracted type with an external conjugate of six and a half inches at two and a half months; at seven and a half months the external conjugate was seven inches. At thirty-seven weeks there was

apparent disproportion; medical premature induction failed; and stomach-tube induction at thirty-eight weeks ended in normal childbirth and a live child (6¾ lb). The following year I attended at the childbirth of the second baby, which weighed a little more than the first (7 lb.), and was born by the natural passages at full term without induction. Mother and children progressed normally. Early this year a similar primipara at two and a half months had an external conjugate of six and a quarter inches: at six and a half months the external conjugate measured seven inches, and, though the pelvis is of the generally contracted type, I am hoping for a normal natural delivery at full term without induction.

During the last six years I have repeatedly noted a growth of half an inch in the external conjugate during pregnancy: it may be due to stretching of the ligaments of the symphysis pubis and sacro-iliac joints, and some of the cases have complained of pain in the groins and hips relieved by lying down. Knowledge of this expansion of the pelvis during pregnancy may diminish considerably the number of premature inductions and diminish the consequent foetal mortality and maternal morbidity to which attention has been drawn. Before six years ago I used to limit my pelvimetry to an early date in pregnancy, and possibly ante-natal clinics are in the habit of doing the same.

I have searched the literature and can find no reference to anyone who has noted this increase of the external conjugate in any of the recent British or American text-books of obstetrics or in Jarcho's book *The Pelvis in Obstetrics*, 1933. Owing to the care taken, I am convinced that the pelvic expansion is real and not due to increased adipose tissue or to flexion of the lumbar spine. The same increase will be noted if the posterior point of the pelvimeter is kept over the upper sacrum instead of the lower edge of the fifth lumbar spine.—I am, etc.,

E. HESKETH ROBERTS, F.R.C.S.ED.

London, W.1, July 3rd.

Traffic Control by Light Signals

SIR,—I was interested in Dr. Guy Bousfield's letter in the *Journal* of July 7th (p. 40) on the subject of traffic control lights, but I think that one or two points call for comment. I do not agree that a driver requires such lengthy warning of an intended stop as your correspondent suggests. Surely the mere fact that a signal-post is visible suggests the necessity of being prepared to stop and bringing the car "under control," though I trust that there are not many drivers who make a habit of going about with their cars out of control. Anyway, they will not do it for very long! I think that the present warning of the impending red stop signal is sufficient, but the period during which the amber is showing should be standardized.

If there are drivers with such a long reaction time as Dr. Bousfield suggests, surely they ought to give up driving altogether. If they are apt to fail at such a simple emergency as the traffic stop light it seems to me that they will be always having accidents, and belong to the class that Americans term "accident-prone."—I am, etc.,

London, S.E.15, July 9th. W. W. KING BROWN, M.B.

Evipan Anaesthesia

SIR,—I am now in entire agreement with Dr. Kuhne when he writes in your issue of July 7th (p. 40): "In the second instance evipan was acting on a centre already depressed by the premedication." The whole purpose of my previous letter was to suggest this, and I am satisfied that he has altered his opinion.—I am, etc.,

MONTAGUE SOLOMON, M.B., Ch.B., D.P.H.

Liverpool, July 7th.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

DISSOLUTION OF PARTNERSHIP

The partners can provide, in their agreement, for dissolution upon any terms they choose, but if they omit to do so the Act lays down the following regulations for dissolution.

If the partnership is entered into for a fixed term it is dissolved on the expiration of the term. If no term is fixed it is dissolved by any partner giving notice to the others of his intention to dissolve it. He may name a day for its dissolution: if he does not it is dissolved as from the date on which he communicates the notice. If any partner dies or goes bankrupt the partnership is dissolved as regards all the partners; and if any partner charges his share for his own debts the partnership may be dissolved at the option of the others. When a partner dies the survivors may collect and pay partnership debts, and may sue debtors without joining the representatives of the deceased partner as parties to the action. When a partner goes bankrupt the solvent partners may collect the partnership debts, and the trustees or assignees of the bankrupt can be restrained from interfering.

ILLEGAL PRACTICE

A partnership is dissolved by any event which makes the business unlawful, or makes it unlawful for the partners to carry it on together. It is probably illegal, as well as unethical, for a qualified and an unqualified person to agree to practise medicine in partnership (Davies *v.* Makuna, 1884), so such an alliance would not be recognized by law. If a member of a medical partnership had the misfortune to be removed from the *Register* by the General Medical Council under its penal jurisdiction, he could probably continue to practise without making the partnership illegal, but his partners would be liable to be struck off the *Register* for associating in practice with an unregistered practitioner. They would also be unable to sue for fees for the work he did. The court would probably consider the removal of a partner from the *Register* to be good ground for dissolving the partnership.

THE PARTNER OF UNSOUND MIND

The Act lays down several events in which the court may dissolve the partnership if one partner asks it to. If a partner is found lunatic by inquisition (a somewhat rare legal procedure), or is shown, to the satisfaction of the court, to be of permanently unsound mind, the court may decree a dissolution. In this case not only the other partners but also the insane partner, by his next friend or his "committee,"† has the right to ask that the partnership be dissolved. Lunacy does not of itself dissolve a partnership, and so long as the continuing partners elect to carry on in the hope that the insane member of the firm will recover there is no dissolution.

In Jones *v.* Noy (1833) the incapacitated partner, who died, had contracted to be always actively engaged in the business—that of a firm of solicitors. As the continuing partner was considered to have carried on in the hope of the other's recovery the representatives of the incapacitated partner were held entitled to his share of the profits.

Unless the sick partner has been found lunatic by inquisition the court will only dissolve the partnership if it is satisfied that his incapacity is permanent—not an easy question for a psychiatrist to answer on oath. If the partner has no active duties to perform the court will probably not dissolve on the application of any other partner. A partner of unsound mind might seriously injure the business of a medical firm if he were permitted to

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), and the third on July 7th (p. 42).

† The legal guardian of a person who has been found lunatic by inquisition.

interfere with it, and the position of the other partners when one of the firm contracts mental disease is no enviable one. It is hardly possible to imagine a more urgent and delicate situation. To certify him themselves would impose on them a responsibility of the first magnitude, and bring upon them the gravest suspicion of the court; yet they might justify their action if the urgency were great, and if they had taken scrupulous care to have their judgement confirmed immediately by independent and expert practitioners—and also to preserve the ailing partner's interest in the business—and if they had immediately and frankly disclosed the facts to their partner's relatives. The fundamental question the court applies to all partnership transactions is: Did you safeguard your partner's interests as scrupulously as your own? For obvious reasons a certifiably insane partner offers less difficulty than one whose eccentricity is less patent. If the other partners can produce good evidence that their colleague is damaging the partnership by his conduct they may succeed in obtaining an injunction to restrain him from interfering in the partnership affairs; but the evidence must be good and may be very difficult to present to a judge necessarily unaccustomed to medical practice. The important point is that the court will not be interested in the medical condition *per se* of the sick partner, but only in the effect which his conduct is likely to have on the practice. The proof, therefore, should be kept on a basis of conduct, and the question whether the partner is or is not of unsound mind—whatever that may mean—is left for determination by other authority.

INCAPACITY AND MISCONDUCT

The court may also decree dissolution when a partner becomes permanently incapable, from any cause other than lunacy, of performing his part of the partnership contract; or when a partner has been guilty of conduct calculated to prejudice the carrying-on of the business; or has wilfully or persistently committed a breach of the agreement; or has so conducted himself that it is not reasonably practicable for the other partners to carry on business with him. The court may dissolve a partnership when it can only be carried on at a loss, and has general discretion to dissolve partnerships when circumstances have arisen which seem to make dissolution just and equitable. Before the Act was passed, in 1890, the court used to inquire chiefly whether the conduct complained of was likely to destroy mutual confidence between the partners, but the Act permits it to ask also whether the conduct is likely to prejudice the welfare of the business and shake its public credit. In every case the nature of the particular business is all-important. It is, for instance, highly probable that the court would dissolve a medical partnership because one of the partners had been guilty of sexual immorality, for such conduct must be very damaging to the firm.

A doctor complained to his defence society* that his partner had been cited as co-respondent in divorce proceedings, had been found to have committed adultery, and was openly living with the respondent. He was rightly advised that this conduct would be likely to cause serious injury to the practice, and that he would be justified in giving notice terminating the partnership under the clause in the articles dealing with misconduct.

In this case, of course, the aggrieved partner could have pleaded that the other had broken the written agreement, and would not have had to rely on the terms of the Act. The court would, however, in interpreting the misconduct in the articles, apply the same standards as if it were deciding whether misconduct had been committed in the sense of the Act. Nevertheless, the court will not interfere merely because a partner has committed a trivial departure from duty, or a technical violation of the articles, or some minor misconduct. Courts of equity do not allow a party to a contract to take unreasonable advantage of the letter of an agreement, and it is necessary to show grave damage to mutual confidence or to the good name of the firm.

* *Annual Report L.C.M.P. Society*, 1928, p. 29.

TEST FOR LIVE BIRTH IN CASES OF INFANTICIDE BY DROWNING

When the dead body of a newly born infant found in a waterway is the subject of medico-legal examination the first point to be dealt with is, Was the infant born alive? The answer to this question depends on the state of maturity of the infant, the volume and colour of the lungs, the flotation test, the contents of the stomach, etc.[1] On the Continent, however, great importance is laid on the contents of the bowel below the pylorus.

Fagerlung[2] states that the presence of water or foreign material from the waterway is definite evidence of live birth, and furthermore, it is definite evidence that the infant was alive when it entered the water. He immersed the bodies of stillborn infants in water for from seven to forty-three hours, and in no instance did he observe any of the water below the pylorus. Experiments on the same lines have been carried out by Beothy,[3] and these confirm the fact that no water can pass the pylorus unless there has been life. Beothy dealt with twenty-four cases, in which he removed the stomach and filled it under pressure with water coloured with carbo-fuchsine or methylene-blue. In none of his cases did any of the fluid pass the pylorus.

From these experiments, therefore, it would appear that if water or any foreign material from the waterway be found below the pylorus it is definite evidence of live birth.

FRANK W. MARTIN, M.D.,
Assistant, Forensic Medicine Department, Glasgow University.

[1] Glaister: *Medical Jurisprudence and Toxicology*, fifth edition.
[2] Fagerlung: *Vjschr. gerichtl. Med.*, N.F. 52.
[3] Beothy: "Fremdkorper in den Darmpartien unterhalb des Pylorus als Lebenszeichen von Neugeborenen," *Deut. Zeit. f. d. Gesamte Gerichtliche Medicin*, 1932, Band 19, Heft I.

Universities and Colleges

UNIVERSITY OF OXFORD

The Board has recommended to the Vice-Chancellor that the Theodore Williams Scholarship in Human Anatomy, 1934, be divided between D. L. P. de Courcy, New College, and L. L. Whytehead, Oriel College. This will necessitate the passing of a decree.

The Master and Fellows of University College, upon the report of the professor of pharmacology, have awarded the Radcliffe Scholarship in Pharmacology to H. M. Sinclair, B.A., B.Sc., Oriel College.

The Welsh Prize for excellence in anatomical drawing has been awarded to A. Austen Hall, Magdalen College.

At a congregation held on July 14th the following medical degrees were conferred:

D.M.—R. S. B. Pearson.
M.CH.—H. F. Hoseley.
B.M.—J. H. Bartlett, D. W. Geidt, W. H. A. Picton, C. E. Greenwood, R. I. Bence, T. W. Lloyd, A. M. G. Campbell, R. H. Gardiner, C. A. Boucher.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*(Part I)*: M. Kahn, N. G. Moitra. *(Part II)*: T. R. Harlan, M. S. Kavarana, A. U. Millar, N. G. Moitra, G. R. Nolan, W. O'Neill, J. P. Raban, C. W. Robertson, T. F. Tierney.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

M.S.—*(Branch I, Surgery)*: G. V. W. Anderson, A. W. Kendall, D. Trevor (University Medal), H. L.-C. Wood.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Entrance Scholarship, L. J. Temple; *Entrance Exhibitions*, R. Mawson, W. S. Lewin; *Sharpey Scholarship (Physiology)*, D. H. K. Lee, M.Sc., M.B., B.S.; *Anatomy* (Senior Class—Gold Medal), Nancy E. G. Richardson; *Physiology* (Senior Course—Gold Medal), M. Albert.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

ACADEMIC POST-GRADUATE DIPLOMA IN PUBLIC HEALTH.—O. M. Akbani, O. M. T. Ansari, K. P. Beaubrun, Catherine B. Crane, W. H. Crichton, F. R. Dennison, H. A. Dirckze, Margaret L. Foxwell, Muriel O. Gibson, J. B. Great Rex, G. S. C. de S. Gunesekera, Ellen G. Heycock, G. Holroyd, F. E. Lipscomb, F. J. G. Lishman, G. H. Lowe, G. P. McC. Marshall, K. J. G. Milne, D. D. Payne, Ethel A. Perrott, C. D. Preston, *Alison J. Rae, L. B. E. Seneviratne, Mary Sutcliffe, L. G. W. Urich, M. H. Wace, E. C. P. Williams, *S. L. Wright. (*Part I*): Muriel V. Joscelyne, Hyacinth I. Lightbourne, I. A. MacDougall.

* Awarded a mark of distinction.

UNIVERSITY OF LIVERPOOL

The following awards have been made in the Faculty of Medicine. *John Rankin Fellowships in Anatomy*, (Senior) Dr. A. G. Leigh, (Junior) Dr. R. A. Hughes. *Johnston Colonial Fellowship in Biochemistry*, G. R. Tristram. *Robert Gee Fellowship in Human Anatomy*, Dr. A. J. Helfet. *Holt Fellowship in Pathology*, Dr. C. S. Anderson. *Holt Fellowship in Physiology*, Dr. J. G. Hailwood. *Thelwall Thomas Fellowship in Surgical Pathology*, Dr. A. S. Kerr. *John W. Garrett International Fellowship in Bacteriology*, Dr. E. R. Jones. *Ethel Boyce Fellowship in Gynaecology*, Dr. J. Polonsky. *University Graduate Scholarship*, H. F. Harwood. *Honorary Scholarship*, L. Henry. *Samuels Memorial Scholarships:* (Medicine) Dr. J. Libman, (Surgery) Mr. M. Silverstone, (Obstetrics and Gynaecology) Dr. J. Polonsky. *Junior Lyon-Jones Scholarship*, Frances E. Brierton. *William Mitchell Banks Bronze Medal (Anatomy)*, E. L. Salingar. *Kanthack Medal (Pathology)*, H. R. W. Lunt. *Silver Medal for Forensic Medicine and Toxicology*, V. K. Drennan; *proxime accesserunt*, A. C. Brewer, A. Cohen. *Gold Medal for Public Health*, V. K. Drennan. *Silver Medal for Pharmacology*, A. J. Gill; *proxime accessit*, A. Singer. *George Adami Prize in Pathology*, H. F. Harwood. *Owen T. Williams Prize*, Margaret F. Procter.

The Council, on July 11th, appointed Dr. D. B. Blacklock, Walter Myers professor of parasitology in the University since 1929, to the newly instituted Chair of Tropical Hygiene, and T. Southwell, D.Sc., Ph.D., lecturer in helminthology in the Liverpool School of Tropical Medicine, as lecturer in parasitology in the University, both from October 1st.

UNIVERSITY OF SHEFFIELD

Dr. F. E. E. Schneider, medical superintendent of Rampton State Institution, has been appointed assistant lecturer in mental diseases. Dr. R. T. Cooke has been appointed junior assistant bacteriologist.

The following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*Part II:* Kathleen M. Adamson and M. B. Brody (with second-class honours), J. K. A. Beverley, T. Lodge, G. F. E. Ramsden, H. R. Vickers, W. D. Wallace.

UNIVERSITY OF ABERDEEN

The following degrees were conferred at a graduation on July 9th:

M.D.—*T. N. Morgan, *Ann L. Thomson, †A. Cruickshank, †J. R. M. Mackie, ‡A. G. Badenoch, ‡R. Mackay, E. Farquharson, T. A. Fraser, W. H. Harris, A. W. Henderson, Catherine I. A. Jamieson-Craig, Mary Riddoch.

M.B., CH.B.—C. Ludwig (second-class honours), E. P. Adel, A. J. Beddie, H. Burnett, J. R. Byars, J. Cameron, E. Cay, E. M. Darnley, I. K. Ettman, Jane R. Forgie, C. Glassman, J. F. R. Goodlad, J. T. Grassie, D. Horn, I. R. Horn, R. A. Horne, P. W. Ingram, M. H. Kirsner, A. H. Lasdon, L. A. Ledingham, A. P. Macdonald, J. C. McGregor, D. A. M. MacLennan, J. H. S. Morgan, A. F. T. Ord, G. Parker, J. R. M. Sangster, I. M. Schnee, J. A. Shearer, I. Shechnér, S. R. N. Smith, E. J. Strachan, J. W. M. Sutherland, A. H. Weiner.

D.P.H.—A. G. Badenoch, D. Bell, Alexandra H. Duthie (née Benton), J. B. Ewen.

*Awarded highest honours for thesis. †Awarded honours for thesis. ‡ Awarded commendation for thesis.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council of the Royal College of Surgeons of England was held on July 12th.

Sir Holburt Waring was re-elected President, and Mr. Wilfred Trotter, F.R.S., and Mr. A. H. Burgess were elected Vice-Presidents.

Professor William Wright (anatomy) and Professor John Mellanby (physiology) were appointed to conduct a Primary Examination for the Fellowship at Madras in December, 1934.

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. Harold Burrows, C.B.E., one lecture on Some Observations on the Sex Hormones in Relationship to Surgical Pathology; Mr. C. Max Page, D.S.O., one lecture on the Late Results of the Operative Treatment of Osteoarthritis; Mr. W. Rowley Bristow, one lecture on Internal Derangement of the Knee-joint; Mr. T. Pomfret Kilner, one lecture on the Transplantation of Skin; Mr. Laurence O'Shaughnessy, one lecture on the Surgery of the Lung Root; Mr. H. J. Seddon one lecture on the Morbid Anatomy of Caries of the Thoracic Spine in Relation to Treatment; Mr. B. W. Rycroft, one lecture on Recent Investigations in the Aetiology and Treatment of Glaucoma; Mr. G. C. Knight, one lecture on the Innervation of the Oesophagus in Relation to the Surgical Treatment of Achalasia of the Cardia; Mr. Lambert Rogers, one lecture on the Surgery of Spinal Tumours; Mr. C. Bowdler Henry, one lecture on the Aetiology and Treatment of Misplaced Third Molars; Dr. Macdonald Critchley, one lecture on the Morphology of the Cerebro-spinal Arteries and their Clinical Significance; Dr. James F. Brailsford, one lecture on Dystrophies of the Skeleton.

Arris and Gale Lecturer.—Dr. John Beattie, three lectures on the Anatomy and Physiology of the Hypothalamus: (1) the central mechanism controlling the cardiovascular system; (2) the relation of the hypothalamus to the gastro-intestinal tract; (3) the nervous control of metabolism and the relation of the pituitary gland to the hypothalamus.

Erasmus Wilson Lecturers.—Mr. R. Davies-Colley, C.M.G., Mr. C. E. Shattock, Mr. Cecil P. G. Wakeley, and Mr. E. K. Martin, one demonstration each on Pathology; Mr. T. B. Layton, D.S.O., one demonstration on the Rhinological (or Nasal) Aspects of (or Problems in) Mummification; Mr. Ronald W. Raven, one demonstration on Abnormalities of Surgical Importance resulting from the Persistence of Rudimentary Embryological Structures.

Arnott Demonstrator.—Dr. John Beattie, Six demonstrations on the contents of the Museum.

Sir Frank Colyer, K.B.E. (honorary curator of the Odontological Collection), and Mr. C. J. S. Thompson, M.B.E. (honorary curator of the Historical Collection) were reappointed for the ensuing year. Miss M. L. Tildesley was reappointed curator of the Department of Human Osteology for the next six months.

The Hallett Prize for Anatomy and Physiology was awarded to David Lloyd Griffiths, M.B., Ch.B., of Manchester; and the fifth MacLoghlin Scholarship of £120 per annum was awarded to Joseph Francis Smith of Bristol Grammar School.

Diplomas were granted jointly with the Royal College of Physicians as follows:

DIPLOMA IN PUBLIC HEALTH.—S. M. Ali, J. H. Dobbin, P. B. Lee Potter, E. K. Pritchard, J. M. Reese, A. T. G. Thomas.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—G. J. Allan, K. W. Allen, J. N. Atkinson, G. T. Barnes, I. S. Bhalla, R. H. P. Clark, F. J. Copeland, A. P. Davis, S. B. Dimson, H. Epstein, P. S. Goonewardene, A. C. de B. Helme, N. M. James, W. B. Johnston, F. H. Reynolds, M. Shun-Shin, C. H. Yeoh.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—E. D. Anklesaria, R. U. Gillan, G. Gordon-Napier, T. R. Jansen, A. H. Lowther, D. W. McLean, L. H. Mottet, M. M. Parikh, A. A. Pomfret, K. Rai, D. Ram, W. E. Rutledge, A. C. Shuttleworth, S. B. Smith, M. M. Syddin, C. Taylor.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. E. C. Aslett, C. N. Attlee, A. Baldie, L. T. Hilliard, S. G. James, Madeline R. Lockwood, J. Mackay, F. E. Pilkington, C. H. Swanton, A. H. Wilson.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—S. K. N. Chowdhury, R. Howarth, A. R. Khan, D. Laing, W. B. McKelvie, C. E. S. Oxley, I. A. Tumarkin.

DIPLOMA IN MEDICAL RADIOLOGY.—J. E. Blewett, P. Hogan, W. H. Hooton, A. H. Richardson, A. M. Vlok.

COMBINED SCHOLARSHIPS EXAMINATION

As the result of the combined hospitals scholarships (Guy's, St. Bartholomew's, and St. Thomas's), the following scholarships and exhibitions have been awarded:

Guy's Hospital Medical School: University Scholarship, E. B. French (St. John's College, Cambridge); Exhibition, R. G. Blackledge (New College, Oxford).

St. Bartholomew's Hospital Medical College: University Scholarship, D. I. Crowther (Magdalen College, Oxford); Exhibition, P. F. Barwood (Sidney Sussex College, Cambridge).

St. Thomas's Hospital Medical School: University Scholarship, T. J. Fairbank (Trinity College, Cambridge); Exhibition, J. Sutcliffe (St. John's College, Cambridge).

Obituary

W. W. KING, F.R.C.S.ED., F.C.O.G.

Surgeon, Jessop Hospital for Women, Sheffield

We regret to announce the death, on July 9th, of Mr. William Wilfrid King at the age of 52. He was educated at Stonyhurst and the Bristol Medical School, whence he qualified M.R.C.S., L.R.C.P. in 1906, subsequently taking the Edinburgh Fellowship in 1908, and, on the formation of Bristol University, the M.B. of that university.

Mr. King went to the Royal Hospital, Sheffield, almost immediately after qualification, and was soon recognized by the contemporary generation of "housemen" in the various hospitals of the city as a man of exceptional energy, ability, and what is known as character. As a house-surgeon at the Jessop Hospital for Women, and later as surgical registrar at that institution, he showed a special aptitude for gynaecology and obstetrics, and in addition to winning the esteem of the honorary staff he also began to become known among the practitioners in the city. When a vacancy occurred on the staff of the Jessop it was assumed by most that King would be appointed, but he was passed over, and it was a great blow to him. Crippled by the absence of private means, King had to make a very momentous decision: to stay in the city and await another vacancy. Those were not the days when the hospitals and universities nursed young consultants. King had to find some means of subsistence whilst he besieged the gynaecological citadel. He was known to have had a good laboratory training, and the Royal Infirmary staff asked him to apply for the part-time post of clinical pathologist at the meagre salary of £75 a year; protesting with characteristic candour that his aim was not pathology, he applied for the post and was appointed (1911); he was a great success. In the old clinical laboratory of the Infirmary he slogged away with inadequate equipment—helped by a B.M.A. grant—in an attempt to elucidate the toxaemias of pregnancy, and his first important paper was on the Abderhalden reaction for pregnancy. Then came the war, and he at once joined the R.A.M.C., being attached to the Third Northern General Hospital. King was never passed for general service, and remained in the city for the duration of the war. His capacity for work was truly colossal. It did not seem to matter what it was: he did any amount of work in the laboratory—chiefly in connexion with the search for typhoid and dysentery carriers—and in addition he tackled all kinds of surgery, and found time to rush out and see a few patients on behalf of colleagues who were over-seas. Somewhere about the end of the war he became a member of the staff at the Jessop Hospital for Women, and immediately began to pull his full weight. He spent much time studying the pathology and clinical features of pelvic adenomyomata, but the great interest of his life turned out to be the aetiology of puerperal sepsis. King was in charge of a large municipal maternity home, and, as is well known, has taken a large part in the attempt to correlate streptococcal infections of the throat with puerperal sepsis. Indeed, this work was probably the cause of his premature death: he went out to investigate an outbreak of sepsis in a neighbouring town, and about forty-eight hours later was himself attacked by a tonsillar infection with *Streptococcus haemolyticus*, which eventually, through infection of the deep veins of the neck, proved fatal.

As a teacher King was excellent, but his own rapid thought and sincerity of purpose did not fit him to tolerate fools. Rapidity of thought and action were characteristic of the man in all his activities. He was a great surgeon, cut off just as he had attained success and reputation. His untimely death will be an immense loss to his hospital and university, which had every right to expect another ten years of active service. The local profession has lost a wise counsellor, not only on matters gynaecological, but on medico-political affairs, as shown by his tenure of the chairmanship of the United Hospitals Staff Club and of the Sheffield Division of the British Medical Association.

No notice of King's life would be complete without reference to his religion, as he was a sincere Catholic who took part in all activities of the Church open to the layman. He leaves a widow and four children.

A. E. B.

BRENNAN DYBALL, F.R.C.S.

Surgeon, Royal Devon and Exeter Hospital

By the unexpected and untimely death of Mr. Brennan Dyball of Exeter, at the age of 62, the West Country has lost one of its foremost surgeons. After a distinguished career as a student, when he became a gold medallist in surgery and gained the Beaney Scholarship in that subject, he went to Exeter in 1898 with a great reputation from St. Thomas's Hospital, and from the Leeds School, where he had been resident surgical officer at the General Infirmary. At the time of his death, at his moorland bungalow, he had for long commanded the respect and affection of all his colleagues and of the profession generally.

By disposition modest and retiring, and hating publicity in any shape—for example, no one ever succeeded in persuading Dyball to take the chair at a professional dinner—he was yet recognized by all who came in contact with him as an outstanding instance of the rare combination of high and widely cultured intellectual gifts, soundly balanced vision and judgement, and a meticulous mind for the smallest detail of any work or scheme, large or small, which he took up. Moreover, he excelled as a carpenter and as a motor-car technician. Of physique ideal for his work, he was full surgeon to the Royal Devon and Exeter Hospital for twenty-one years, for the last twelve of which he was the senior; and from the first set a standard of study and technique worthy for all to aim at, and not only maintained that standard to the end, but was for ever ceaselessly seeking to improve it. His active and eager mind was always out for the best of the latest methods. His approach to a case was that of a physician, and every side of a problem received full consideration before a decision was reached. A man of very few words, he yet, by his manifest kindliness and understanding, held the fullest confidence of his patients of all classes, among whom must be included an exceptionally large number of doctors and their families; and, though not rich, he was notoriously, indeed sometimes embarrassingly, indifferent to the financial reward of his labours.

Mr. Dyball acted as honorary secretary of the Section of Surgery at the British Medical Association's meeting at Exeter in 1907. Early during the war he was given a commission in the R.A.M.C. (T.), but, being indispensable at home, was seconded to take charge of No. 5 Section of Exeter War Hospitals, a hospital of over 200 beds, the whole of the surgical work of which he carried out, in addition to his work at the Royal Devon and Exeter Hospital and a large private practice. But the outstanding public fruit of his prevision was the establishment of the orthopaedic organization throughout Devon, centred at the Princess Elizabeth Orthopaedic Hospital; and by general consent the whole credit for this work must be equally divided between him and, on the lay side, Dame Georgiana Buller. And, having envisaged it, Dyball characteristically designed it, not only as to general

layout but down to the smallest detail, and plunged whole-heartedly into every aspect of the institution of this new service, from the active surgical work of which he at once retired when it became possible to appoint a whole-time specialist in this branch. His creative skill found scarcely less opportunity for full play in the many improvements and large additions to the Royal Devon and Exeter Hospital since the war, some long accomplished and others now under construction or as yet only designed in detail which he was destined not to see, but all of which bear the manifest imprint of his influence and skill, as all engaged with him in the committee work would readily testify.

The colleague to whom we are indebted for this memoir adds: In Dyball the profession has lost a man who was generally beloved and who combined powers of independent and original practical thought with manual dexterity, and it is not too much to say that the whole county mourns his loss.

THE LATE MR. BERNARD CRIDLAND

D. S. S. writes: As one of the number of residents whose privilege it has been from time to time to work with and for Mr. Bernard Cridland, I would like to add to the many that you will have received my appreciation of his unfailing kindness to his juniors. In particular he maintained an interest in the future of the many younger members of the specialty to whom in their hospital days he so freely imparted information and help, and encouragement to emulate his operative skill. Though he set himself and his residents a high standard of perfection, he was more than charitable to one's constant failures to attain it. His hospitality, generosity, and courtesy will be long remembered and appreciated by all who had the opportunity of personal contact with him, and his influence will continue to be felt for many years. Since leaving his immediate supervision I have had many occasions to be grateful to him for his considered opinions on matters of every kind, and his juniors have lost not only a revered and respected chief, but a very good friend.

THE LATE SIR JAMES FOWLER

Dr. REGINALD HEARN writes: I feel that I may have something of interest to add to your obituary notice of that gracious personality the late Sir James Fowler. He and I, since my election in 1924, were the only medical members of the Beefsteak Club. He loved the place, and not only visited it in former years, as you correctly state, but continued to dine there with the utmost regularity until the latter part of 1933. He then told me with uncanny accuracy that he had only a short time in which to live, that this was his last visit, and that he intended at the end of the year to resign from the club after a membership of nearly fifty years. At the Beafsteak everyone dines at the same table, and conversation is general. In the vast majority of cases its members are prominent and distinguished in most varying walks of life; but in our profession we all know the stupid manner in which even the most intelligent layman will occasionally attempt to discuss the technical side of medicine with a doctor. Fowler hated it, and the whimsical, kindly, albeit sometimes cutting manner in which he repelled all such attempts was a joy to behold. This side of him only appeared when laymen were present. If, as often happened, we were alone together, he would delight in giving me the benefit of his rich professional experience, and I only hope that I may have benefited from it. Such occasions would be late in the evening after other members had left, for he was always a late diner, and going early to bed did not appeal to him. His great friendship with his fellow member Lord Montagu was formed at the Beefsteak, and the associations with Beaulieu which resulted from it were the delight of his later years. His general culture was wide and profound, which rendered his conversation fascinating. About him there seemed to cling the atmosphere of the more spacious and leisured age which he represented, and in his passing we have to mourn one who was, in the truest sense of the term, a "scholar-physician" of a rare and splendid type.

Dr. ARTHUR F. PERIGAL, New Barnet, writes: I was fortunate to be one of Kingston Fowler's house-physicians at Brompton thirty-four years ago, and learned much by his meticulous and thorough examination of patients and his accurate deductions therefrom, albeit street noises were often distracting, causing him to remark upon the difficulty of auscultating to the accompaniment of popular tunes of the day! He had a charming and genial manner which made consultations with him a pleasure, and his kindness I have never forgotten.

Dr. DAVID CHARLES LLOYD, the tuberculosis officer for Cardiganshire under the Welsh National Memorial Association, died at his home in Lampeter on June 26th after only a day's illness. A native of Corwen, North Wales, and a student at Guy's Hospital, after qualifying in 1911 he went into general practice at Llanfairfechan, where he remained for three years. His knowledge of the work and the trials and difficulties of general practitioners stood him in good stead later on in establishing cordial relations with his colleagues in practice. The Welsh National Memorial Association, for the prevention, treatment, and abolition of tuberculosis in Wales, was incorporated by Royal Charter in 1912. To an ardent Welshman fresh from hospital work this national effort to stamp out a national scourge made an immense appeal. From quite an early date Lloyd was co-operating with the tuberculosis physician for his area and consulting with him on cases met with in his own practice. From this interest grew what was to become a life-long passion—the fight against tuberculosis. In 1915 he entered into the service of the Memorial Association and came under the stimulating influence of Dr. Marcus Paterson, and learnt to apply the basic principles of the treatment of tuberculosis laid down by the latter. After various appointments under the association, Dr. Lloyd became a tuberculosis physician for Cardiganshire, and after his eighteen years in the county it is difficult to think of Cardiganshire without thinking of him. Those who have been engaged in tuberculosis work realize the long uphill fight which took place in the early days before the subject received adequate recognition; the long struggle against prejudice, ignorance, and superstition. The work was exacting and the discouragements many, and those devoting themselves to it were of the nature of pioneers. In a pioneer we expect ability allied to fearlessness, tenacity, and self-sacrifice. The pioneer must live with and for his work. In medicine we expect to find in addition sympathy and understanding. The work is important, but must never be allowed to submerge the patient. Dr. Lloyd had all these qualities combined with a receptive mind, always open to new knowledge, and ever ready to apply what was useful to the treatment of his patients. He was generous in giving credit to others, and, although disclaiming any credit to himself, had the satisfaction of seeing the death rate in his own county fall from 157 to 66 in a period of twenty years. To his patients he was physician, counsellor, and friend, and in his dealings with them never forgot they had minds as well as bodies. He lived a full and strenuous life, and the manner of his going was such as he would have wished—to go when still actively engaged in the work he loved so much.

H. A. R.

We regret to announce the death, on July 15th, as the result of a motor accident, of Dr. ROBERT HERVÉ YELF of Norwich. Both his father, Dr. R. E. B. Yelf, now of Selsey and a past-president of the Oxford and Reading Branch of the B.M.A., and his grandfather, the late Dr. L. K. Yelf, were medical practitioners at Moreton-in-Marsh, Gloucestershire. He was educated at Rossall School, served during the Great War as lieutenant in the 2/4th Royal Lancashire Regiment, and was badly gassed. He studied for the medical profession at King's College Hospital, London, and, after qualifying M.R.C.S., L.R.C.P. in 1925, held resident posts at his own hospital,

at the Royal Waterloo Hospital for Children, and at St. Andrew's, Dollis Hill. About four years ago he entered into partnership with Dr. E. B. Hinde of Norwich, and became medical officer of the 4th Norfolk Territorial Regiment. He was on his way by road to join this battalion in camp at Roedean, near Brighton, when about 10 p.m. on July 14th he was involved in a collision with another car. He was taken to the Horley Cottage Hospital, where he died two hours later without recovering consciousness. He was buried at Church Norton, near Selsey, the C.O. of his regiment providing a bearer party and bugler to accord him the last honours. Dick Yelf was 36 years old and unmarried. He was keen on his work and games. He played Rugby football for his school and hospital, and was devoted to swimming and music. Above all, he had a great faculty for friendship, and many contemporaries at school and hospital and in the regiment will miss his cheery personality.

Dr. ELIZABETH GOULD BELL, who died recently at her residence, College Gardens, Belfast, was one of the first women medical graduates in Ireland, taking her degrees in the Royal University, Ireland, in 1893. Dr. Bell devoted most of her time to the welfare of children and women. She was honorary physician to the Women's Maternity Home and the Babies' Home, Belfast, and one of the medical officers appointed by the Belfast Corporation in connexion with their babies' clubs welfare scheme. Ill-health compelled her to resign the latter position some years ago. She was one of the keenest advocates in the pre-war movement for the extension of the franchise to women, and through this she became a close friend of Mrs. Pankhurst and her daughter and Lady Betty Balfour. Dr. Bell married Dr. Hugh Fisher, who died some years later. There was one son of the marriage, Mr. Hugo Bell Fisher, who was a medical student at Queen's University when war broke out, and who died of wounds received when his battalion of the Munster Fusiliers was decimated at Passchendaele. His mother also volunteered for service in the campaign, and was in charge of a ward in the Malta Hospital.

The death took place on July 13th, in Dumfries and Galloway Royal Infirmary, of Dr. ROBERT GLOVER, a well-known surgeon in the Dumfries district. Dr. Glover, who was born in 1868 at Maxwelltown, took a medical course at Edinburgh University, and graduated M.B., Ch.B. there in 1907. After holding a resident appointment at Preston Royal Infirmary, and practising for a time at Manchester, he settled in Dumfries. Latterly, being in indifferent health, he gave up private practice to a large extent, and accepted the post of medical superintendent of Dumfries and Galloway Royal Infirmary. Dr. Glover has two brothers in the profession, Dr. T. A. Glover of Doncaster and Dr. J. A. Glover of Tadcaster.

Mr. JOHN FREDERICK JENNINGS, F.R.C.S., whose death we record, was born at Cardiff on August 7th, 1876, the son of John Jennings, a timber merchant. Educated at the Cardiff University, in Geneva, and privately, it was intended that he should enter the business of his father. He decided, however, that he was more suited for medicine than for a business career, and entered as a medical student at St. Bartholomew's Hospital. He took the M.R.C.S. in July, 1900, and was selected by the late Sir Henry Butlin to act as his house-surgeon. Sir Henry resigned in November, 1902, and the rest of Jenning's term of office was passed under William Bruce Clarke, who then became full surgeon. In 1903 Jennings was elected F.R.C.S., and was for a short time a demonstrator in the pathological laboratory at St. Bartholomew's Hospital, then under the control of Professor F. W. Andrewes. Jennings went into practice in Mayfair as soon as his term of office had expired, and quickly obtained a large circle of patients, who also became his friends. His sound knowledge of his profession, his absolutely fair dealing, his buoyant manner, his fluent knowledge of French, and his numerous good stories went far to ensure this success. During the Great War he acted as surgeon specialist to the Queen Alexandra Military Hospital, and consulting physician to the Swedish Hospital and to the Michil Hospital at Queen's Gate. He married Gwendolin Thomas in 1906, who survives him, but without children. He died on July 5th at 11, John Street, Mayfair, and the funeral service took place at Golders Green, the service being taken by the Rev. Christopher Cheshire of Holy Trinity Church, Sloane Street. P.

Dr. FRANCIS EDWARD FORWARD died at Mottingham, London, S.E., on July 2nd, aged 67, after an illness of over eighteen months. He was born at Chard in Somerset in 1866, and was educated at Sherborne School. After studying medicine at St. Thomas's Hospital he qualified M.R.C.S., L.R.C.P. in 1889, and obtained the diploma of F.R.C.S.Eng. a year later. After serving as house-physician and ophthalmic house-surgeon at St. Thomas's he was appointed medical officer of the Holberton Hospital in Antigua, British West Indies, and held that position from 1891 until 1899, during which time he was made a justice of the peace and a member of the Legislative Council of the Leeward Islands, of which Antigua is the seat of government. He was then transferred to H.M. Home Department, and held various appointments under the Home Office until he retired in 1930. On his retirement he received the O.B.E. Dr. Forward leaves a widow and one son.

The Services

DEATHS IN THE SERVICES

Major-General George Bainbridge, Bombay Medical Service (ret.), died at Dawlish on July 6th, aged 89. He was born in August, 1844, the son of Frederick Bainbridge, surgeon, of Knaresborough, was educated at Leeds and at St. Mary's, and took the M.R.C.S. and L.R.C.P. diplomas and the L.S.A. in 1866; subsequently the M.R.C.P.Lond. and the M.D.Durh. in 1891. Entering the I.M.S. as assistant surgeon on April 1st, 1867, he became surgeon colonel on August 4th, 1896, and surgeon major-general on August 16th, 1897. His whole service was spent in the Bombay Presidency, and wholly in civil employ, except for the short period of a year after his promotion to administrative rank, when he held the post of deputy surgeon general of the Sind District. He held the civil surgeoncies, successively, of Dhulia and Satara, till, in 1878, he was appointed ophthalmic surgeon and professor of ophthalmic surgery in the Grant Medical College, Bombay. He always had a particular bent for ophthalmic work, and about 1888, when he was at Karachi, he was specially detailed to operate on the Meer of Hyderabad-Sind for double cataract. After sick leave in 1880, he was again appointed civil surgeon of Satara, and afterwards of Karachi, and held the latter post till his promotion. In August, 1897, he became surgeon general with the Government of Bombay, and held that appointment for five years, till his retirement on October 30th, 1902. During his tenure of office plague was at its height in Bombay; he did useful and responsible work as a member of the Plague Commission, and was the author of a *Report on Plague in Sind in 1896-7*. General Bainbridge had been a member of the British Medical Association for sixty-five years. He never allowed himself much relaxation from his duties, but as a young man he was extremely keen on big game shooting and riding, and had many fine trophies. After retirement he led a quiet, studious life. He was an omnivorous reader of books on science, politics, sport, and travel, and also current medical literature. He retained his health and memory almost to the end, and had a richly stored mind.

Colonel Jonas William Leake, C.M.G., late R.A.M.C., died at Belmont, Surrey, early in July, aged 60. He was born on August 8th, 1873, the son of the late Surgeon J. R. Leake of the 80th Foot, was educated at St. Edmund's College, and at Charing Cross Hospital, and took the M.R.C.S., L.R.C.P.Lond. in 1897, and the D.P.H. of the London Colleges in 1906. Entering the R.A.M.C. as lieutenant on January 28th, 1899, he became lieutenant-colonel in the long war promotion list of March 1st, 1915, and colonel on December 20th, 1923, retiring in 1926. He served throughout the South African War of 1899–1902, when he took part in the relief of Ladysmith, including the actions of Spion Kop, Vaal Krantz, Tugela Heights, Pieter's Hill,

and Laing's Nek, also in operations in Natal, the Orange River Colony, Cape Colony, and the Transvaal, and received the Queen's medal with six clasps and the King's medal with two clasps. In the war of 1914–18 he was mentioned in dispatches in the *London Gazette* of February 17th, 1915, and January 1st, 1916, and received the C.M.G. In 1890 he married Mabel Mary, daughter of Mr. W. Morgan, and had three daughters.

Surgeon Commander Reginald Lyon, R.N. (ret.), died suddenly at Dundee on July 10th, aged 44. He was the second son of the late Andrew Thomson Lyon of Glenogill, and was educated at Glasgow, where he graduated M.B., Ch.B. in 1915. After qualifying he entered the Navy, became surgeon lieutenant-commander on July 16th, 1921, and retired on reaching the rank of surgeon commander six years later. He served in the war of 1914–18, receiving the medal.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

This week the House of Commons discussed the Estimates for the Departments of Mines and Education, and also for Scottish administration, including the Department of Health. Progress was made with the Cattle Industry (Emergency Provisions) Resolution and Bill.

The House of Lords was in Committee on the Traffic Bill.

In the House of Lords, on July 12th, the Royal Assent was given to the Finance Act, the Adoption of Children (Workmen's Compensation) Act, the Prince of Wales's Hospital (Plymouth) Act, and to other measures.

On July 16th the Ministry of Health and Provisional Order Confirmation (South Middlesex and Richmond Joint Hospital District) Bill was read the third time by the House of Commons.

The Health and Housing Committee of Conservative members of Parliament, with Sir Francis Fremantle in the chair, heard addresses on July 18th on the plan of the Amulree Committee for establishing a National Housing Trust.

In the House of Lords, on July 17th, the Ministry of Health Provisional Order Confirmation (South Middlesex and Richmond Joint Hospital District) Bill was received from the House of Commons with an amendment, with which the Lords agreed.

The parliamentary recess is expected to begin about August 2nd.

Milk Debate in the House of Lords

The second reading of the Milk Bill was moved in the House of Lords by Earl DE LA WARR on July 12th; the Bill has already passed the House of Commons. Earl De La Warr said the Bill attempted to increase the production of milk in the United Kingdom. The first method of doing this was by cleaning up the herds from tuberculosis, and the provisions for this were contained in Clauses 9 and 10. The second method, a scheme of milk publicity, included spending £500,000 a year for the next two years largely on increasing the supply of milk in schools for school children. So that the Government and the farmers could co-operate in a campaign for cleaning up the herds from tuberculosis there was to be a grant of £750,000 from the Exchequer over four years. Attested herds would be those completely free from tuberculosis. It would be necessary for a producer to have two successful tests, with a six months' interval, to show the herd to be completely free. As soon as this was done, the producer could apply to the Ministry for an official test at the expense of the Government. If the latter was satisfactory he would be able to enter the scheme for attested herds, and would receive on his milk a premium probably amounting to 1d. a gallon. Discussions were in progress with the Certified and Grade "A" (T.T.) producers whether they should come into the scheme. Another grade of herds, the accredited herds, would be administered by the Milk Marketing Board. These would have to submit twice a year to full clinical examination, and their produce would have to attain to the Grade "A" standard. There would be a premium of 1d. per gallon from the funds of the Milk Marketing Board. Clause 11 dealt with publicity for milk. It was not intended that much of the £500,000 should be spent on advertising; the Government would like to see the money spent on reducing the price of milk in schools. At present over 800,000 children were paying 1d. per day for a third of a pint. The Government had nearly completed a scheme whereby these children would obtain their milk for ½d. a day.

Lord MARLEY said that what the country suffered from was not over-production of milk but under-consumption. He asked whether the Government was going to use public money to secure an increased consumption of the rotten milk now being distributed or whether it would wait until the milk was really good before increasing its consumption by school children. Lord De La Warr had told the House that the milk was bad. Lord DE LA WARR replied that he had not said that. Lord MARLEY, continuing, said the facts about the quality of milk had been given by other peers, and had not been controverted. The report of the Committee on Cattle Diseases showed Great Britain had the highest percentage in the world of tuberculosis-infected herds, being at least 40 per cent. of cows in dairy herds compared with a percentage of 4 in the United States and approximately 12 in Canada. The Committee had said that neglect of adequate precautions against increase of the disease made it improbable that tuberculosis was diminishing in British herds. Lord Marley cited a speech by Lord Moynihan at the Mansion House to the effect that 59 per cent. of cases of glandular enlargement and 35 per cent. of bone and joint disease in England and Wales were due to the drinking of contaminated milk, and in Scotland the proportions were far worse. This was the milk which Lord De La Warr was now going to advertise to be increasingly consumed in this country. There was to be a campaign, towards which the Government would contribute £750,000, to ensure the proper inspection of tuberculous herds. Dr. Elliot had stated in the House of Commons that this campaign would take a long time. Lord Marley asked if Parliament could receive a report every six months of the progress of the scheme. He noted that the Bill also contained proposals to pay premiums for pure milk; this was a good preliminary measure. He had seen it carried into effect in a Midland dairying combine which had its centre in Birmingham. A premium was paid there for each gallon of milk that came up to a certain bacilli count test, and had more than a certain percentage of fat-content. The result was that the number of bacilli per cubic centimetre had been enormously reduced and the fat-content had improved. Lord Marley thought the only way Parliament could ensure pure milk for the nation was by preventing the sale of untested milk by retailers. He suggested that retailers should, meanwhile, be compelled to put up notices in their shops to say that they were selling untested milk which might very well be contaminated.

Medical Profession Criticized

Lord CRANWORTH said the medical profession urged on Parliament the duty of cleaning up the milk supply, and pointed to impurities which existed in a very small section of the milk produced. He criticized the profession because it did not also speak of the unclean production of milk over-seas—for instance, in Switzerland and Denmark—where cows went indoors in the early autumn and never came out again until the spring. Parliament had no help from the medical profession in drawing attention to the import of skimmed milk into the United Kingdom, although analysis showed that practically the whole value lay in the sugar in the condensed skimmed milk. That was the only form of milk many poor children ever received. The harm to those children by drinking condensed skimmed milk was greater than if they drank the dirtiest milk produced on any farm in this country. It was quite true that possibly 40 per cent. of cows in this country were reactors. Probably 80 per cent. of these could be discovered by careful and regular examinations. The scheme now being considered for accredited herds was desirable, but a still more important recommendation of the Animal Diseases Committee was that all herds should be subject to periodical clinical examination. Accredited herds would consist at first of those which their owners were sure were clean at the start. If these owners possessed any

doubtful cows they would hand them over to neighbours before clinical examination. He asked the Government to consider what the expense of the scheme would be. The number of reactors in certain parts of the United States had been reduced in ten years by about 60 per cent. The cost of that was 150,000,000 dollars. He asked the Government also to consider the reliability of the test. The present method was a double intradermal test. Any peers who possessed herds knew from experience how unreliable these tests were at present, and how an animal would prove one day to be a reactor and a week later not to be one. He also asked the House to allow for the strides made by scientific knowledge. A book had just been published called *Spahlinger contra Tuberculoses*. This described the course of Spahlinger's experiments in Switzerland and Norfolk, which were successful. The Government of Northern Ireland held an inquiry, and on December 17th, 1932, published a report of an official demonstration in Belfast, which showed that 100 per cent. of the calves immunized by Spahlinger's vaccine had resisted an infection of tuberculosis which proved fatal to non-vaccinated calves in a few weeks. Medical men might have reasons to prove that what was stated in this book was not true, but it was full of names of the highest repute, and deserved the attention not only of the Minister of Agriculture but also of the Ministry of Health.

Necessity for Standardized Tuberculin

Viscount ASTOR said there was general agreement that some milk was unsatisfactory and even dangerous, but it was easy to over-emphasize the consequent danger to children. Of the cows reacting to the tuberculin test only 22 per cent. gave tuberculous milk, and of the human tuberculous population only 5 per cent. suffered from bovine tuberculosis. The deaths from non-pulmonary tuberculosis in 1911 were 14,600. Last year those deaths dropped to 5,400. That indicated a decided improvement in the quality of the milk available for children. If they were to get tubercle-free herds and increase the number of tubercle-free cows a reliable test was vital. They needed reliable tuberculin, and also veterinary surgeons qualified by experience to carry out this difficult and delicate test. The potency or strength of all tuberculin used must be adequate and the same. He cited a memorandum by the Tuberculin Committee of the Medical Research Council emphasizing the need for this, and the fact that all tuberculin on the market was not of equal potency. Confidence would not be established in the minds of the public or of the farmers without reliability in the tuberculin used. Either the Government should standardize tuberculin or, if that were impossible owing to administrative difficulties, it should restrict the use of tuberculin for licensed herds to specified brands of known and adequate potency. Lord De La Warr should consult his experts to learn whether more frequent testing than twice a year would be desirable, particularly when a cow was brought into the herd. Lord ROWALLAN said the standardization of tuberculin had been before the medical profession as a goal for many years, and he hoped Lord De La Warr would do something to ensure this. If any large scheme of free testing were introduced in the United Kingdom there would not be sufficient experienced veterinary officers to carry it out, results would be anomalous, and years would be required to overcome the ill effects. Referring to Spahlinger's experiments, Lord Rowallan asked if the presence of tuberculosis could be detected by the ordinary means after injection. The use of B.C.G. vaccine in inoculation in Great Britain had been discredited because, after inoculation, the animal became a permanent reactor to the tuberculin test. He was not sure whether Spahlinger's inoculation would not prevent the testing of the inoculated animal later by the tuberculin test. He challenged Lord Marley's statement that Scotland was backward in the cleanliness of its milk. He called attention to an experiment made not long ago in the West of Scotland to test raw as against pasteurized milk. Milk from non-reacting cows was divided, half being pasteurized and half given raw to calves. At the end of a year each of the calves which had been fed from 5 days old on pasteurized milk reacted to tuberculin, and not one of those which had been fed on raw milk. Lord IVEAGH said that at present the English certified Grade "A" (T.T.) producers were not under the Milk Board. It would be incongruous if they were left out of the scheme adumbrated by the Bill, but new regulations might be disastrous just when this milk was required. An enormous amount of unestablished theory about tuberculosis ought to be scientifically checked before drastic alterations were made.

Replying to the debate, Lord DE LA WARR said that for the final test of herds only standardized tuberculin would be used. It was hoped that when future legislation made possible the control of certain therapeutic substances tuberculin would be one of the first substances to be dealt with. Milk sold in schools would be approved by the medical officer of health, and also by the school medical officer if he were not the same man. Lord Marley's charge that the Government was going to force dirty milk into the schools was made without inquiry into the facts. The milk from many areas and many farms could be improved, but it was unnecessary to libel the whole commodity as Lord Marley had done. Lord MARLEY said he had only contended that milk was a bad and dangerous drink unless produced in clean conditions from herds which were properly tuberculin-tested. Lord Moynihan had said he would rather put a barrel of gunpowder in his nursery than a glass of milk, but that was an exaggeration. Lord DE LA WARR, in conclusion, said this Bill was a first step. It might be desirable eventually to work out a scheme for supplying completely free milk to schools.

The Bill was read a second time without a division.

Restoration of Economy Cuts

Supplementary Estimates issued on July 12th include £1,700 to meet the extra cost of the restoration, from July 1st, 1934, of half the abatements made from the remuneration of part-time medical and dental referees and consultants under the Ministry of Health in 1931. The Ministry of Health Supplementary Estimate also includes provision of an appropriation-in-aid of £301,300. The restoration, from July 1st, 1934, of one-half the abatements from the remuneration of insurance doctors and chemists involves this reduction in the amount to be applied toward expenses of administration of national health insurance under the National Economy (National Health Insurance) Order, 1931. The similar appropriation-in-aid for the Department of Health for Scotland is £34,200. A new estimate of £1,556,500 for services under the Milk Bill, when passed, includes £6,500 for payments in the year ending March 31st, 1935, after consultation with the Minister of Health, for securing as far as practicable that the milk supplied for human consumption in England and Wales is pure and free from the infection of any disease. The similar Estimate for Scotland is £12,000.

Poor Relief in Scotland

The Poor Law (Scotland) Bill was read a second time by the House of Lords on July 12th. In moving it, Lord STRATHCONA AND MOUNT ROYAL said Clause 8 aimed at the break-up of the general or mixed poorhouse. Separate accommodation was desired for the sick, the children, and the aged and infirm. Clause 10 gave specific statutory authority for the boarding-out of children, which had long been a feature of Poor Law administration in Scotland. Clause 11 proposed to incorporate the provision of the National Health Insurance Act, 1924, disregarding the first 7s. 6d. of health insurance benefit when calculating the means of an applicant for poor relief. It was also proposed that the first 5s. of sick pay from a friendly society or trade union should be disregarded, as in England, and the first £1 of a wound or disability pension.

Tarring of Roads and Cancer

On July 16th Mr. SHAKESPEARE, replying to Mr. Hepworth, said that investigations into the theory that the tarring of roads was possibly connected with the existence of cancer were already being undertaken in various quarters, and any available information on the subject would receive careful consideration by the Departmental Committee on Cancer. The Minister of Health was advised, however, that prolonged inquiries would be necessary before any definite conclusions could be reached.

Approved Societies' Surplus Funds

Sir HILTON YOUNG told Sir R. Gower, on July 12th, that the total surplus funds of all approved societies with head offices in England and Wales disclosed at the third valuation amounted to £32,479,359, of which £18,427,696 was set aside for additional benefits and the balance kept in reserve. The additional benefits took the form of increase in the normal rates of sickness, disablement, and maternity benefits, and payments towards the cost of such treatment as dental, ophthalmic, hospital, and convalescent home treatment, and towards the provision of medical and surgical appliances. The total amounts allocated to such treatment benefits in the year 1933 were as follows:

	£
Dental	2,201,893
Ophthalmic	469,594
Hospital and convalescent home treatment ...	388,858
Medical and surgical appliances	183,169
Other treatment benefits	145,086
Total ...	£3,388,600

Rebate on Medical Spirits

On July 16th Mr. DUFF COOPER informed Dr. Salter that the quantity of spirits on which rebate was paid under Section 4 of the Finance Act, 1918, as amended, during the year ended March 31st, 1934, on the ground that the spirits were used in the manufacture or preparation of recognized medical preparations or for scientific purposes was 584,000 proof gallons. He had no information as to the quantities used under the respective heads.

Automatic Gas Detectors in Mines

During the debate in committee of the House of Commons, on July 17th, on the vote for salaries and expenses of the Mines Department, Mr. E. BROWN said that progress had been made with the provision of pit-head baths. Altogether 177 had been constructed, and twenty-five were under construction. Reforms were being effected under the recent lighting order. The new safety-lamp would give twice as much illumination as the lamps now in use, and during the change-over period of about two and three-quarter years 300,000 lamps would have been replaced. There was no possible objection to the use of automatic gas detectors in mines, and no prejudice against them. It could not be said of a particular type which had been mentioned that it had passed tests sufficient to make its use compulsory in all pits. All he was concerned with was to take no steps that would endanger the safety of the men working in the mines. Regulations had been drafted for the application of detectors, either flame or automatic, and he was now discussing with the Miners' Federation some issues that had arisen. Replying to Mr. Tinker, on July 17th, Mr. Brown said it was not his intention to take steps to make it compulsory on colliery owners to provide automatic gas detectors on every long wall-face where coal-cutting machinery was in use. His proposals for dealing with the provision of fire-damp detectors were contained in the preliminary draft regulations at present under discussion. The draft required the provision of a sufficient number of detectors of an approved type, but in accordance with one of the governing principles of the Coal Mines Act, the colliery management would have the responsibility of deciding which type of detector should be provided.

In further reply to Mr. Tinker, Mr. Brown said that the introduction into collieries of protective equipment against accidents—of the nature of helmets, shin-guards, and leather gloves—was still in its early stages. Details of all the pits where such equipment was under trial or in regular use had not been collected. Much work on the design, manufacture, and trial of different patterns had been necessary, and was still proceeding. A general report on the matter was included in the annual report of the Safety in Mines Research Board for 1933, which would be published shortly. There was no settled practice as to supply. At some pits the articles were supplied free, at some others the cost was shared between owners and workmen, and some workmen provided their own hats, gloves, or boots.

House of Lords on the Road Traffic Bill

The House of Lords began consideration, in committee, of the Road Traffic Bill, on July 17th. During the discussion on Clause 1, which imposes a general speed limit of thirty miles an hour in built-up areas, Viscount CECIL moved an amendment, to leave out the words "providing that the speed limit should not operate between midnight and 5 a.m." The EARL OF PLYMOUTH said that out of 7,000 fatal accidents on the roads in 1933 less than 160 occurred between these hours. Less than half of these—sixty-five—were in built-up areas. Of 3,000 pedestrians killed in 1933 over 2,700 were between 15 and 55, and most of such people would not be about on the roads between midnight and 5 a.m. There was also the difficulty of enforcing a speed limit at that time.

Several speakers strongly supported the amendment, which was agreed to, restoring the clause to the form originally proposed by the Government.

Viscount BERTIE OF THAME moved a new clause providing that a person charged with driving a car when under the influence of drink or drugs should be subject, if so required, to be examined and tested as soon as might be after his request by a doctor selected by the police, and should have the right to be examined and tested also, if he so desired, by a doctor or other person of his own choice. He said that if the clause were accepted everybody would know that if they were charged with being drunk or under the influence of drugs while in charge of a motor car, they would be subjected to a medical examination, whether they consented or not. The EARL OF PLYMOUTH said that there was something in the proposal that where drunkenness was an element in an offence a person charged should not be able to prevent an examination which might help to ascertain his real condition. The clause, however, went too far in some cases and not far enough in others. In practice it was often impossible for the police to decide, until after a medical examination, whether a charge ought properly to be brought. A person might be ill and not under the influence of drugs or drink. In practice the proposal was not required. In any case, where a person's condition was a matter of doubt it was the well-established practice of the police to call in a doctor to examine him, and if the person concerned wished also to be examined by a doctor nominated by himself he was allowed to be so examined.

The new clause was withdrawn.

The EARL OF PLYMOUTH, replying to a question by Earl Howe on the possibility of prohibiting the use of motor horns at late hours in the evening, said that the Minister of Transport had had the matter under consideration. It was the Minister's intention to proceed cautiously and experimentally, and to select certain limited areas in which to prohibit the use of motor horns during certain hours of the night.

On Clause 13 (payments and insurance in respect of emergency treatment of injuries arising from the use of motor vehicles on roads) Lord SANDHURST moved to leave out the word "motor" so as to make the clause applicable to accidents caused by other forms of vehicles. He said that by the inclusion of the word "motor" in the Bill they were stigmatizing one set of people. This would not do the medical profession a good service. At present doctors were only being paid for emergency treatment in respect of one-third of the road accidents. He saw no logical reason for that. If the doctors were found to collect thousands of fees of 12s. 6d. in respect of such treatment they should collect for all the accidents and not for two-thirds of them. He agreed that they should do something to see that doctors were paid for their services, but the only way to do it was to see that every vehicle user shared the responsibility. That would encourage more vehicle users who were not motorists to be a little more careful. The EARL OF PLYMOUTH said he could not accept the amendment, and it was negatived.

Lord SOMERLEYTON moved an amendment providing that the clause should apply not only to accidents on the roads, but also to accidents in places to which the public had a right of access. EARL HOWE said that nothing could better illustrate the intolerable injustice which it was proposed to inflict under this Bill than the fact that a motorist, if he left his car in a parking place and an errand-boy ran into it on his bicycle, might have to pay the doctor's fee of 12s. 6d. He had every sympathy with the doctors, but if they

perpetuated this injustice on the motoring public they were in some danger of raising insurance premiums, especially on the lighter class of vehicles, to a point which many motorists could not afford to pay. The EARL OF PLYMOUTH said that the amendment was open to a number of objections, and he could not accept it. Lord SOMERLEYTON said that the hospitals were not built for motorists, but for the sick poor of the neighbourhood. The hospitals found great difficulty in getting payment for the treatment of road accidents, and the total cost to hospitals of such accidents was about £230,000 a year. That sum spread over 2,000,000 motorists would not mean more than about 2s. 6d. each. He would, however, withdraw the amendment at this stage.

The amendment was withdrawn.

(Further consideration of the Bill in committee was adjourned until July 19th.)

A Plea for More Nursery Schools

The House of Commons in committee, on July 17th, discussed the vote for the Board of Education, when Mr. F. WEST advocated more nursery schools. He said that another 250 were required. They would cost £2,000,000 to build, but it would be a good investment. Miss RATHBONE expressed the view that the medical tests in the schools for malnutrition were not satisfactory. Mr. RAMSBOTHAM, in reply, said that Miss Rathbone would do much more good to the cause she had at heart if she would try to impress on all concerned a better understanding of the diet provided in the home.

Committee on Rehousing.—On July 9th Mr. SHAKESPEARE informed Mr. Chorlton that the Minister of Health had appointed a committee to advise on buildings required in rehousing after slum clearance. Sir George Humphreys would be chairman, and Mr. A. Zaiman, whose services had been lent by the Department of Scientific and Industrial Research, would be secretary of the committee.

Successor to Dame Janet Campbell.—Replying, on July 12th, to Mr. T. Smith regarding the post left vacant by the resignation of Dame Janet Campbell, Sir HILTON YOUNG stated he had placed in charge of the maternity and child welfare work a most experienced woman medical officer, who had previously acted as deputy to Dame Janet Campbell. She was directly responsible to the Chief Medical Officer, and received additional remuneration for her increased responsibilities. Another woman medical officer would shortly be added to the staff engaged on this important branch of the work of the medical staff. Replying to Sir Francis Fremantle, Sir Hilton Young said the title of the office was subject to an alteration, which he would explain if required.

Reports of School Medical Officers.—Mr. RAMSBOTHAM told Mr. Tom Smith, on July 12th, that the Board of Education had not recommended that the annual reports of school medical officers should be abridged as much as possible, but that repetitive matter should be abridged so as to enable fuller information to be given on new developments or special investigations.

Notes in Brief

The numbers of new houses completed and under construction under the Housing Act, 1930, at March 31st last were 17,569 and 10,512 respectively. The number of houses demolished under the same Act at the same date was 19,840.

To accelerate housing in Scotland the Secretary of State has appointed additional administrative and technical officers charged with the duty of visiting and assisting local authorities in preparing and carrying out housing schemes. Their headquarters will be the Department of Health, Edinburgh.

The Government's proposals for the encouragement of beef production in the United Kingdom include the establishment of a permanent Commission, an essential function of which will be to co-operate in a reform of slaughtering systems with a view to greater economy and efficiency.

Mr. Shakespeare states that in the five years ended last March nearly £262,000 was sanctioned for the purchase and lay-out of lands for recreation in rural areas, and much other land had been provided by gift or otherwise.

Medical News

A post-graduate course will be held at St. Thomas's Hospital from September 24th to 28th. The course includes lectures and demonstrations from 10 a.m. to 12.15 p.m.; ward rounds from 2 p.m. to 4 p.m.; and lectures from 4.30 p.m. to 5.30 p.m., each day. The fee for the course is £2 2s. The old students' dinner will be held at Dorchester Hotel on Friday, September 28th.

The next monthly clinical meeting for medical practitioners will be given at the Hospital for Epilepsy and Paralysis, Maida Vale, W.9, on Thursday, July 26th, at 3 o'clock, when Dr. Anthony Feiling will demonstrate. Tea will be provided, and those intending to be present are asked to send a card to the secretary beforehand.

A course in psychology for public school masters, matrons, and others concerned with residential students, will be held at the Institute of Medical Psychology, Malet Place, W.C.1, from August 1st to 11th. The special problems of young people of all ages up to 19 years will be discussed, and practical demonstrations given at a children's clinic. The scheme has been organized by the Child Guidance Council.

The Fellowship of Medicine (1, Wimpole Street, W.) has arranged lecture-demonstrations at 11, Chandos Street, W., on July 24th and 31st, at 2.30 p.m. Also demonstrations at the National Temperance Hospital on August 11th, and at St. George-in-the-East Hospital from August 13th to 17th. All courses, demonstrations, etc., arranged by the Fellowship are open only to members. Particulars are given week by week in our *Supplement*, in the Diary of Post-Graduate Courses.

A medical congress on cider and apples was recently held in Paris, when papers on their dietetic and therapeutic value were read by Professor Porin of the medical school of Rouen, Dr. Legrain and Professor Labbé of Paris, and Dr. Motet of Angers.

A congress on *B. coli* infections and other intestinal infections and intoxications will be held at Châtel Guyon on September 23rd and 24th, when Dr. Heitz-Boyer will discuss the entero-renal syndrome, and Drs. Brulé and Garbau the effect of intestinal affections on the liver. Further information can be obtained from Dr. T. Balme, Châtel Guyon.

The sixth Congress for Therapeutical Paedagogy will be held from July 26th to 28th at the University of Munich, when the principal subject for discussion will be therapeutic paedagogy in the service of public health, inheritance, and education, when the chief speakers will be Drs. Wettstein, Pfaundler, and Luxemburger. Further information can be obtained from the secretary, Erwin Lesch, Vossstrasse 12/2, Munich.

The Lord President of the Council has appointed Mr. E. Barnard, D.S.O., M.A., to be director of food investigation in the Department of Scientific and Industrial Research, and Mr. F. Kidd, M.A., D.Sc., to be superintendent of the Low Temperature Research Station, Cambridge. Both these posts were previously held by the late Sir William Hardy. Mr. Barnard has been assistant director of food investigation since 1931. He joined the Department of Scientific and Industrial Research on entering the Civil Service in 1919. Dr. Kidd, who has been on the staff of the Low Temperature Research Station since its establishment in 1922, has been engaged on food investigation work under the department since 1918.

Professor W. S. Lazarus-Barlow, chairman of the Appeal Committee of the British Empire Cancer Campaign, in his report to the Grand Council at its meeting held at the House of Lords on July 9th, reported that the proceeds of the Empire Day appeal will probably exceed £60,000. Of this sum £5,330 was the result of the wireless appeal on Whit Sunday evening by Lord Moynihan of Leeds, and the balance from flag days, house-to-house collections, and various other efforts held in aid of the campaign on Empire Day in approximately 1,400 centres.

A notice by the University of London appears in our advertisement columns this week inviting applications for the University Chairs of Medicine and Pathology, both tenable at St. Bartholomew's Hospital Medical College. The salary for the chair of medicine is £2,000 a year; and for the chair of pathology £1,200 a year, together with £500 as pathologist to the hospital. Applications should reach the Academic Registrar, University of London, S.W.7, by September 18th.

A memorandum on the collection and storage of rainwater for domestic water supplies (Memo. 183W, H.M. Stationery Office, 1d.) has been prepared by the Ministry of Health. Experience of the drought has again emphasized the serious neglect in many parts of the country, of any attempt to make prudent use of rainwater for this purpose, and has also indicated the desirability of spreading more information of necessary measures. With a comparatively small expenditure rainwater can be conserved so as to provide generally a sufficient reserve for domestic purposes, not only in areas where other sources of supply are not available, but in areas where there are such sources but the cost of rendering them available is very high.

The council of Epsom College, at its meeting on July 11th, awarded the vacant "France" pension of £30 a year, together with a bonus of £12 a year, to Dr. John Henry Chaldecott.

The issue of *Paris Médical* for June 16th is devoted to bone and joint surgery.

The issue for July 7th of the *Nederlandsch Tijdschrift voor Geneeskunde*, the organ of the Dutch Association for the Advancement of Medicine, contains a sympathetic obituary notice of the late Prince Consort of the Netherlands, who was president of the Dutch Red Cross Society for twenty-five years.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocria Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Treatment of Raynaud's Disease

Lieut.-Colonel L. B. WARD, late A.M.S. (Upper Colwyn Bay, North Wales), writes: I would feel very grateful if any of your readers could suggest further treatment for a case of Raynaud's disease beyond what is usually given in textbooks, which consists usually of warmth and galvanism.

Deafness After Opotherapy

"M. M. S." inquires whether there is any evidence that insulin or thyroid extract causes deafness, or at any rate diminishes the acuity of hearing.

House Flies

"B. W. L.," in reply to "G. L.," writes: As I have had an identical experience both in England and in Africa I may be able to suggest a cause and permanent lethal cure. I have lived in a country house with nearly as many windows as "C. L." mentions, and for twice as many years. One window has always been chosen as a promenade for flies of all sizes: in one corner of this window a large fly-catching spider has constructed a domicile. Hundreds of flies are constantly being killed by this spider. As flies attract other flies, this window is never cleaned, but some of the dead flies are constantly removed. This window keeps the flies away from the larder and the other windows, which are kept clean and unattractive to flies. My wife, who is a naturalist, would not have the large spider, or any of the accessory spiders, removed on any account. We do not find it necessary to wage chemical warfare as "G. L." has done; we leave Nature to take her course without undue interference. It is useless to take windows out of their frames, as "G. L." has done, in order to find the breeding places. Perhaps there are horses near his house. He must look for the breeding places in manure or refuse, and these probably will not be far away. By all means wage war with "flit," etc., on other places, but not on a window garrisoned by spiders. As far as I know the fly-catching spiders never do harm to food, but flies can convey the most pathogenic bacteria known to man. Probably "G. L." will find Nature's remedy far more efficacious than chemicals. I have always found spiders far more efficient at killing flies than pampered cats at killing mice.

Exercises for Lumbago

Dr. OLIVER HEATH (London) writes in reply to the inquiry by "W. H. T." (*Journal*, June 30th, p. 1195): The discussion "W. H. T." is trying to remember may be that published on fibrositis in the *Proceedings* of the Royal Society of Medicine (vol. xix, Parts 1 and 2 (joint discussions), p. 30), and reported in the *British Medical Journal* (1925, i, 509). In the first reference (p. 32) I described my treatment of one acute attack three days after a gumboil, and of a second acute attack two days after an overdose intravenous inoculation of *B. typhosus* vaccine. The treatment evolved from these personal experiences consisted in frequent slow bending forward as if to pick up an object from the ground, just so far as and no further than the point where pain commences, followed by slow recovery to the upright position. With each repetition of the bending the movement becomes easier and pain less. For twenty-four years now, since the first severe attack of fever, I have used this exercise successfully to ward off numerous threatened attacks of lumbago. An alternative, necessitating help of another, is massage applied scientifically on the same principle just to the point of causing pain.

Income Tax

Assessment of New House

"M. B." has had a new house built and moved into it on completion on March 24th, 1933. It has been assessed to income tax at £53 10s. net. When and for what periods will tax be payable?

*** It is probable that the authorities will ignore the few days prior to April 5th, 1934, in which case tax will first become payable, as for the financial year 1934–5, on January 1st, 1935. Income tax on property is chargeable on the current year's basis.

Schedule A Assessment

"A. M. R." has a house of which the gross value for rating purposes is taken as £140, and the net rateable value as £113. What should be the corresponding Schedule A assessment?

*** £140 gross, less the usual statutory allowance for repairs; if the gross Schedule A assessment were taken as £113 there would, in effect, be a double allowance for the cost of maintenance.

Assistant becoming Partner

"G. T." has been an assistant, and is going into partnership with his principal on July 1st, 1934. The practice has been assessed on the cash basis, and the change is not likely to affect materially the gross income of the practice. Should the practice be assessed as a continuing concern?

*** Yes, undoubtedly—in that event the firm's liability for the whole of 1934–5 will be assessed on the net profits

of the practice for 1933, when "G. T." was a paid assistant and the profits reduced by payment of his salary and car allowance; obviously the division of an assessment so reduced between the two partners will benefit both. In addition, the same advantage will apply to June 30th, 1934, and therefore will affect half the assessment for 1935–6. This does not necessarily mean that the inspector of taxes will agree to the continuance of the cash basis, but we see no reason why he should object to that course. With regard to "G. T.'s" car depreciation claim, there is no need to have the car valued as at July 1st, 1934; the value as at that date can be calculated on a 20 per cent. written-down basis.

General Household Expenses

"J. S. T." states that in the town where he lives the usual professional allowance is one-third of the general household expenses, whereas in Edinburgh, so he is informed, the ratio is two-thirds. Is it worth while his appealing to the Commissioners?

⁂ The higher ratio in the cases where two-thirds is given is probably due in part to the fact that high rents are paid for houses in a particular street or quarter—the ratio would obviously be higher in, say, Harley Street than in a small country town. In the latter case the remaining two-thirds of the rent might very well be only a fair equivalent for the private accommodation. We hesitate to advise an appeal to the Commissioners, though it might succeed, as such questions are often matters of general decision within the area for which they act.

LETTERS, NOTES, ETC.

Triplets Without Tears

Dr. GEOFFREY BARBER (Dunmow) writes: The subject of triplets is not infrequently evoked to cause laughter in the music-hall, but one would not imagine that it would actually keep the parturient mother in peals of mirth. Yet the following case combines the two unusual features of three live sons at one birth and childbirth regarded by the patient as an amusing event. On July 12th I went to the confinement of a primigravida 25 years old. Labour was four weeks early, the abdomen was about normal in size for full time, but very puzzling to diagnose on palpation. Examination per vaginam showed that there was first a foot and later a buttocks presentation. Strong pains began at 3 p.m. The patient was very cheerful, and encouraged the pains by pushing hard herself on the fundus, and exclaiming, "Come out of it, you little rascal!" At 7.55 p.m. her efforts were rewarded by the birth of a small male child, delivered easily as a breech with extended legs. There were no efforts at respiration until this was stimulated by a gentle stream of CO_2. The uterus remained much the same in size, and the mother would not believe the birth until shown the child, when she laughingly suggested the presence of a whole football team to follow. Renewed efforts on her part bore a second male child at 8.20, also a breech, and the only slightly diminished uterus now confirmed the presence of triplets. Her spirits rose even higher, and the nurse and I could not fail to join in her laughter when she abjured the third's delay with, "Come out of it, you little toad!" The patient's mother, who was waiting below, became so worried that she rushed up the stairs and burst into the room to know if she was losing her reason, and was only partly pacified at the unorthodoxy of the laughter. A third very feeble boy was born at 9.20, and at 9.35 the single placenta followed. It was oval, with three umbilical cords in a line about four inches apart. The patient then demanded a meal, and is making a very rapid recovery. The suggestion to name the triplets Tom, Dick, and Harry was eventually turned down in favour of Mark, Luke, and John. Mark and Luke flourish, but John was feeble from the first, and died twenty-four hours later. Their aggregate weight was little more than 11 lb., so that the ease of the labour was due to its being on the "instalment system."

Young's Rule

While the terms "Young's modulus" and "Young-Helmholtz theory" of colour vision are known to every student, the eponym "Young's rule" (for calculating the dosage of drugs suitable for children) is less familiar, and even those who are accustomed to its use may not necessarily associate it with Thomas Young. In the current number of the *British Journal of Children's Diseases* (April–June), Dr. W. R. Bett quotes the original wording of the rule taken from Young's *Introduction of Medical Literature* (1813, p. 428). A brief account is given of the man, who is described as one of the most prodigious and baffling figures the world of science has ever seen. A precocious child, who before the age of 4 had read the Bible through twice and by the age of 14 knew a dozen languages, he became F.R.S. while still a medical student. As a doctor he was too scientific to become fashionable, and in his bedside manner he lacked the necessary air of assurance. The physician was eclipsed by the physicist, who was the author of the wave theory of light. As an Egyptologist he was a pioneer in deciphering hieroglyphics.

Anglo-American Continental Medical Society

A meeting of the Anglo-American Continental Medical Society and its friends in the British Medical Association will be held next week during the Bournemouth meeting. Members and guests will assemble at 12.30 p.m. on Friday, July 27th, and lunch together in the Pavilion. Those wishing to attend should communicate with Dr. Tom Williams before July 23rd, at the Royal Societies Club, St. James's Street, S.W.1.

Addendum

In the footnote to our review of Professor J. R. Blayney's *Dental Pharmacology and Therapeutics* (July 14th, p. 68) the name of the publisher—Henry Kimpton—was accidentally omitted.

Disclaimer

Dr. R. BLAIR GOULD (London, W.) writes: My attention has been drawn to an article concerning myself which appeared in two London daily newspapers last week. I wish to make it quite clear that this article was published without either my knowledge or consent.

"An Encyclopaedia of Sexual Knowledge"

Dr. NORMAN HAIRE (London, W.) writes: Anybody reading the report on page 94 of the *Journal* for July 11th of the prosecution concerning a pamphlet advertising the "Encyclopaedia of Sexual Knowledge," in which my name was mentioned, would be justified in inferring that I was responsible for the pamphlet. I should be obliged if you would publish this disclaimer. The facts are these. I was engaged to write some new chapters for the English edition of the book, which had already appeared in French, and to edit the English edition. Unfortunately I did not foresee that there would be any need for me to obtain an assurance that advertisements of the work should be subject to my approval. Ten thousand copies of the pamphlet were sent out before I ever saw it. As soon as I saw it I protested to the publisher that it was in bad taste, and that I objected to its being issued in connexion with a work under my editorship. I showed him copies of other pamphlets advertising books on sexual subjects issued by leading London publishers, and asked him to let me prepare a pamphlet along these lines to take the place of the one to which I objected. He refused to do so, and of course I had no way of compelling him. I had to be contented with his permission to ameliorate the pamphlet slightly, but my draft for the revised pamphlet, which I regarded as at any rate less objectionable than the original one, underwent alterations and was sent out without a proof being submitted to me. I protested again, and received an apology and an assurance that in future proofs of all new advertising matter would be sent to me. It was, however, too late for this to be of any use to me, and as a matter of fact the police authorities had already visited the firm's offices in connexion with the pamphlet. In your report the manager of the defendant company is stated to have said in court: "It was revised and extensively altered by the editor, Dr. Haire, before being sent out." If this is an accurate and full report of his statement it is the truth but not the whole truth, and conveys a false impression. As I was absent on an obstetric case in Scotland when the case was heard I was unfortunately not able to bring out these facts in court.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 39, 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 44.